A STUDY TO ASSESS THE EFFECTIVENESS OF KNEADING TECHNIQUE ON JOINT PAIN AMONG OLDAGE PEOPLE WITH ARTHRITIS IN SELECTED OLDAGE HOMES AT KANYAKUMARI DISTRICT

A DISSERTATION SUBMITTED TO THE TAMILNADU DR. M.G.R. MEDICAL UNIVERSITY, CHENNAI IN PARTIAL FULFILLMENT FOR THE DEGREE OF MASTER OF SCIENCE IN NURSING

OCTOBER 2015

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INTERNAL EXAMINER **EXTERNAL EXAMINER**

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OCTOBER 2015

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Investigator

LIST OF CONTENTS

Chapter No.	Title	Page No.
I	**INTRODUCTION**	1-11
	Background of the Study	1-3
	Need for the Study	4-6
	Statement of the Problem	6
	Objectives	6-7
	Hypotheses	7
	Operational Definitions	7-8
	Assumptions	8
	Delimitations	8
	Ethical Consideration	9
	Conceptual Framework	9-11
II	**REVIEW OF LITERATURE**	12-19
III	**METHODOLOGY**	22-26
	Research Design	20
	Research Settings	20-21
	Variables	21
	Population	21
	Sample Size	21
	Sampling Technique	21
	Sample Selection Criteria	21-22
	Description of the Tool	22-23
	Validity and Reliability	23
	Pilot Study	23-24
	Data Collection Procedure	24-25
	Plan for Data Analysis	25
IV	**DATA ANALYSIS**	27-48
V	**DISCUSSION**	49-52
VI	**SUMMARY AND RECOMMENDATION**	53-57
	REFERENCES	58-63
	APPENDICES	ix - xxx

LIST OF TABLES

Table No.	Title	Page No.
1	Percentage Distribution of Samples According to Their Selected Demographic Variables	28-29
2	Assessment of Joint Pain in Both Experimental and Control Group	39
3	Comparison of the Effectiveness of Kneading technique on Level of Joint Pain Among Oldage People With Arthritis in Experimental Group	43
4	Comparison of Pre-test and Post-test Score on Level of Joint Pain Among Oldage People With Arthritis in Control Group	44
5	Comparison of the Post-test Score of the Joint Pain Among Oldage People With Arthritis Between Experimental and Control Group	45
6	Association of the Post-test Scores of Joint Pain Among the Experimental Group and Control Group With Their Selected Demographic Variables	47

LIST OF FIGURES

Figure No.	Title	Page No.
1	Conceptual Framework Based on Modified J.W.Kenny's Open System Model (1969)	11
2	Schematic Representation of Research Methodology	26
3	Percentage Distribution of Samples According to Their age	31
4	Percentage Distribution of Samples According to Their sex	32
5	Percentage Distribution of Samples According to Their Educational Status	33
6	Percentage Distribution of Samples According to Their Religion	34
7	Percentage Distribution of Samples according to Their Marital Status	35
8	Percentage Distribution of Samples According to Their Dietary Habits	36
9	Percentage Distribution of Samples According to Their Duration of Pain	37
10	Percentage Distribution of Samples According to Their Taking Drugs to Relieve Pain	38
11	Percentage Distribution of Pre and Post-test Level of Joint Pain Among Experimental Group	41
12	Percentage Distribution of Pre and Post-test Level of Joint Pain Among Control Group	42
13	Mean and Standard Deviation of Post-test Score of Experimental Group and Control Group	46

LIST OF APPENDICES

Appendix No.	Title	Page No.
1	Permission Letters	ix-xii
2	List of Experts Validated the Tool	xiii-xv
3	Evaluation Criteria Checklist for Tool Validation	xvi-xviii
4	Tool for Data Collection (English and Tamil)	xix-xxv
5	Protocol for Kneading Technique	xxvi-xxx

ABSTRACT

A study was conducted to evaluate the effectiveness of Kneading technique on joint pain among oldage people with Arthritis in selected oldage homes at Kanyakumari District.

Objective

The overall aim of the research was to assess the effect of Kneading technique in reducing level of joint pain among oldage people with Arthritis

Research Methodology

Quasi-Experimental with pre test post test control group design was adopted in this study. The study was conducted among the oldage people at Trinity oldage home, Thirithuvapuram for experimental group and Home for the aged, Pilankalai for control group. 30 samples for each group was selected using convenience sampling technique. Data collection was done by using Modified Extremities Functional Scale. Kneading technique was administered for experimental group. The data gathered were analyzed by descriptive, inferential statistical method and interpretation was done on the basis of the objectives of the study.

Findings of the Study

The result shows the mean post test score in experimental group was 25.10 whereas in the control group, the mean post test score is 52.48. The mean difference was 27.38. The obtained independent 't' value was 13.89 which is more than the table value (p=2.00) with the degree of freedom 58 at 0.05 level of significance. Hence the Research Hypothesis (H_1) is accepted.

Conclusion

From the results of the study, it is concluded that rendering Kneading technique to the old age people with Arthritis was effective in reducing the joint pain.

CHAPTER –1

INTRODUCTION

"For all the happiness mankind can gain
not in pleasure but relief from pain"

-John Dryden

Background of the Study

Health is the state of being hale, sound or whole in body, mind or soul, especially the state of being free from physical disease or pain. Health is a dynamic condition resulting from a body's constant adjustment, adaptation in response to stresses and changes in the environment for maintaining an inner equilibrium called homeostasis. Health is the level of functional or metabolic efficiency of a living organism. In human, it is the ability of individuals or communities to adapt and self manage when facing physical, mental or social challenges **(Huber M. Knottnerus., 2011).**

Health and disease are biological concepts in the same sense as Heart, Lung and Blood pressure. According to this concept health and disease cannot be evaluative or subjective. A comprehensive understanding of human health includes the greatest possible hormony of all of man's forces and energies, the greatest possible spiritualization of man's bodily aspect and the finest embodiment of the spiritual needs **(Haring. B., 2014).**

The social determinants of health are the circumstances in which people are born, grow up, live, work, age and the systems put in place to deal with illness. These circumstances are in turn shaped by a wider set of forces: economics, social policies and politics **(WHO., 2011).**

Aging is the natural process of becoming older. Aging has been defined as the collection of changes that render human beings progressively more likely to die. It is an inevitable, irreversible process but it is not necessarily negative **(Joao Pedro de Megalhaes., 2014).**

Aging is just a part of the life cycle: that is, a person is born, goes through childhood, adolescence, adulthood, at a certain point of time and it begins to age. But the ageing process does not start at the same time for everyone, and not even all the organs in the same person age at the same rate. For statistical and public administrative purposes however, old age is frequently defined as 60 or 65 years of age or older **(Senesciencia., 2014).**

The top 10 conditions that ail the elderly are Arthritis, Alzheimer's disease, Parkinson's disease, Diabetes Mellitus, Disk prolapse, Urinary incontinence, Stroke, cancer, Tremors and Dementia. Arthritis is a common and often chronic condition among these population. A major consequence is the limitation of the ability to conduct activities of daily living leading to loss of independence **(Pavithra Sampath., 2013).**

Arthritis is a joint disorder featuring inflammation. A joint is an area of the body where two different bones meet. A joint function is to move the body parts connected by its bones. Arthritis is frequently accompanied by joint pain which is referred to as arthralgia **(MedicineNet., 2015).**

There are several types of arthritis. The two most common ones are osteoarthritis and Rheumatoid arthritis. Osteoarthritis usually comes with age, sometimes osteoarthritis follows an injury to a joint. Rheumatoid arthritis happens when the body's own defense system doesn't work properly. Another common types of arthritis are juvenile idiopathic arthritis, psoriatic arthritis, gout, ankylosing spondylitis and fibromyalgia **(National Institute of Health., 2014).**

The causes of arthritis depends on the form of arthritis. It includes injury which is leading to degenerative arthritis, abnormal metabolism such as gout and pseudogout, inheritance causing arthritis of Lyme disease and an overactive immune system which cause rheumatoid arthritis and systemic lupus erythematosus **(William C. Shiel., 2014).**

Arthritis symptoms can develop gradually or suddenly. The most common symptoms of arthritis involves joint pain and stiffness, mostly in the morning, are

typical signs, along with swelling of the joints. Other symptoms are decrease in range of motion of the joints and redness of the skin around the joints **(Brindles Lee Macon., 2012).**

Arthritis can be a serious effect on a person's life and well being. Current treatment strategies include pain relieving drugs, a balanced rest, exercise, cost effective symptomatic management interventions, client educations and supportive programs. It allows more people with this disorder to lead an active and productive life **(Arthritis Research Society International., 2009).**

Non-pharmacologic interventions are the cornerstone of arthritis therapy and it includes massage therapy (kneading), patient education, temperature modalities, weight loss, exercise, physical therapy, occupational therapy, hot fomentation, cryotherapy and joint unloading in certain joints **(Dillon., 2009).**

Massage therapy has a long history in cultures around the world. Today, people use many different types of massage therapy for a variety of health related purposes. It encompasses many different techniques. In general, therapists press, rub and otherwise manipulate the muscles and other soft tissues of the body. They most often use their hands and fingers, but may use their forearms, elbows or feet. The usual sequence of techniques are effleurage, petrissage (kneading), friction, vibration percussion, passive and active movements **(George Krucik., 2012).**

Kneading technique have been used in the conservative management of arthritis. It is different from other massage technique in which muscles and subcutaneous tissues are alternatively compressed and released. It increases blood flow and lymph drainage reducing the accumulation of metabolites in the tissues, relax muscle through the manual release of muscle tension, release of increased serotonin that decreases the noxious pain impulses to the brain. Endorphin releases from the pleasant sensation of touch; overriding pain signals (gate control theory) and energy transfer. It increases release of somatostatin to promote restorative sleep **(Smith., 2010).**

Need for the Study

Arthritis is the most common chronic condition affecting patients over the age of 70. It is estimated that in adults over the age of 30, up to 6% of adults are symptomatic of knee arthritis and around 3% are symptomatic of hip arthritis. The prevalence of osteoarthritis increases with age and with an aging population, the effect of this disease will represent an ever-increasing burden on health care. Arthritis of the hip and knee is the most common cause of difficulty in walking. It has a huge impact on the economy with absence from work and early retirement exceeding 2% of the gross domestic product. It is estimated that over 1 million total hip replacements are performed worldwide each year, in the United States alone it is predicted that between 1995 and 2020 an additional 19 million people a year will be affected by arthritis **(Bijlsma., 2011).**

The world wide estimation of incidence and prevalence of arthritis is 9.6% of men and 18% of women in the age of 60 years and above. Arthritis is a major cause of impaired mobility. In 1990, arthritis was estimated to be the eighth leading non-fatal burden of disease accounting for 2.8% of total years of living with disability. It is the highest ranking disease among the musculoskeletal diseases and contributes to approximately 50% of the disease burden in this group. Overall disease burden ranking of 12 for combined 25 European countries, 15^{th} ranked for old European and 9^{th} rank for the 10 European accession countries **(Pfleger. B., 2010).**

Arthritis is the most common joint disorder in united states. Arthritis has a significantly higher age-adjusted prevalence in women 23.9% than men 18.6% with the prevalence increasing with age and higher among women than men in every age group. An estimated 2,94,000 older people are affected by some form of arthritis. Almost 43.2% (22.7 million) of older adults with arthritis reported limitations in their usual activities, 40% report that it is “very difficult” or they “cannot do” atleast 1 of 9 important daily functional activities **(Zhang. Y., 2013).**

Globally, prevalence of arthritis increases with body mass index (BMI), which contains 16.3% among underweight adults, 20.3% of overweight adults and 28.9% of obese adults. Physical activity and exercise have been shown to benefit people with

arthritis by improving pain, function and mental health. However, around 24% of adults with arthritis report being physically inactive compared with 18.6% of adults without arthritis **(Joanne M. Jordan., 2010).**

In India, the elderly people above the age of 60 years comprise 7.5 percent of total population making health care available and accessible to them is one of the health priorities of the country. The epidemiological data on health problems in elderly reported that in 2007 as follows: Poor Vision 45.4%, Hypertension 38.2%, Arthritis 36.1%, Bowel problems 31.6%, Depression 23.6%, Difficulty in Hearing 20.5%, Weight Loss 19.6%, Anaemia 16.8%, Urinary problems 13.4%, Diabetes Mellitus 13.3%, Falls 8.7%, Ischemic Heart Disease 7.7%, Asthma 6.6%, Chronic Obstructive Pulmonary Disease 4.8%, and Tuberculosis 3.1% were the common health problems highlighted by the study **(Srivastava., 2007).**

The World Health Organization estimated in India that 40% of people over the age of 70 years suffer from knee osteoarthritis, 80% of the people at some time in their life have had low back pain at some point in their life. Osteoporotic hip fracture, injuries and diseases of the musculoskeletal system account for more than 20% of patient visits to primary care physicians **(Kotach., 2008).**

The prevalence of musculoskeletal disorders in India, varying between 7.08%-11.5%. The most important categories of diseases were osteoarthritis and spinal disorders. The prevalence rate generally increased with age and reached as high as 32% at Dibrugarh and 18% at Delhi in the elderly persons above 70 years of age. About 85% of persons with musculoskeletal disorders having high functional limitation with nearly 10% reporting absence from work **(Bela Shah., 2010).**

The prevalence of arthritis is 7.08% in New Delhi, 11.52% in Dibrugarh and 9.53% in Jodhpur. The prevalence of arthritis is lowest in the age group of 18-30 years and gradually increases with advanced age groups from 40 years and above. According to arthritis score, 47.56% have moderate arthritis score in Delhi, 63.75% in Dibrugarh and 44.68% in Jodhpur have mild arthritis score. On the contrary 9.31% of the patients in Delhi, 8.31% in Dibrugarh and 4.32% in Jodhpur reported that absence from work due to arthritis. Atleast some functional limitation has been observed in

84.10% of patients in Delhi, 86.20% in Dibrugarh and 66.44% in Jodhpur **(Indian Council of Medical Research., 2012).**

The prevalence of arthritis in the rural and urban area is estimated in Tamilnadu population. The survey revealed that significantly higher prevalence of arthritis in the rural 17% in adult, 54.1% in elderly compared with the urban 5.6% in adult and 16.4% in elderly. The prevalence of arthritis high among older people in both rural and urban areas **(Nisha Elizabeth Ajit., 2012).**

In Kanyakumari, about 1 in 5 patient over the age of 60 has some form of arthritis and 1 in 20 patients the knee is the most severely affected joint. The people falling in the age group of 40-60 years are mainly affected by arthritis. The prevalence of arthritis in Kanyakumari District is 1,15,000 adult population **(Dr. Issac Sunder Sen., 2013).**

During the investigators clinical practice in the field of nursing, the investigator found that many clients attending orthopedic outpatient department and inpatient clients had various degrees of arthritis with severe joint pain and limitations in mobility. The clients expressed that they need on intervention to relieve joint pain and improve their mobility status. Based on the review of literature various therapies like kneading technique have beneficial effect in reducing joint pain and improving the mobility status. Pain is subjective feeling and so it is extremely important for the nurse to assess, intervene and evaluate each clients discomfort on an individual basis. So, the investigator would like to conduct such study on arthritis.

Statement of the Problem

A study to assess the effectiveness of kneading technique on joint pain among old age people with arthritis in selected old age homes at Kanyakumari district.

Objectives

- To assess the level of joint pain among old age people with arthritis before kneading technique in experimental and control group.

- To assess the effectiveness of kneading technique on level of joint pain among old age people with arthritis in experimental group.
- To compare the post test score of joint pain among old age people with arthritis between experimental group and control group.
- To find out the association between the level of joint pain among old age people with arthritis and their selected demographic variables.

Hypotheses

H_1 There will be a significant difference in the level of joint pain after kneading technique among old age people with arthritis in experimental group than the control group.

H_2 There will be a significant association between the level of joint pain among old age people with their selected demographic variables.

Operational Definitions

Effectiveness

It refers to the outcome of kneading technique in relieving joint pain among old age people with arthritis which can be measured by Modified extremities functional scale.

Kneading Technique

It refers to affected muscles and subcutaneous tissues are alternatively compressed and released in a circular motion for every 3-4 seconds. The fingers move over the underlying structures with the skin during the one half circle in a pressure phase. After this phase, pressure is released and the hand glides smoothly over the another half circle in a release phase. The pressure over the tissues are applied by the pad of thumb finger for ankle, elbow and shoulder joints as well as the pad of tip of fingers for knee joint, 20 minutes for 5 days to relieve joint pain.

Arthritis

It refers to trouble in moving the major joints, pain and stiffness around the knee, ankle, shoulder and elbow joints which is measured by Modified Extremities Functional Scale.

Joint Pain

It refers to an aching pain in affected major joints (knee, ankle, elbow and shoulder), which disturb the activities of daily living for the oldage people.

Old age

It refers to people above the age of 60 years of both gender.

Assumptions

- Old age people with arthritis will have joint pain.
- Kneading technique may be effective in reducing joint pain of old age people with arthritis.
- Kneading technique may be effective in clearing the swelling over the major joints.
- Arthritis is common in women than men also it is associated with aging.

Delimitations

- Number of sample is delimited to 60 (30 for experimental group and 30 for control group).
- The data collection period is delimited to 4 weeks.
- The study is delimited to two old age homes (Oldage Home, Thiruthuvapuram and Home for Aged, Pilankalai).

Ethical Consideration

The proposed study was conducted after the approval of the dissertation committee of Thasiah College of Nursing, Kanyakumari District, TamilNadu. Assurance of confidentiality was given to the samples and consent was obtained from the samples.

Conceptual Framework

A conceptual framework is a theoretical approach to study the problems that are scientifically based which emphasize the selection, arrangement and classification of its concept. Selecting a nursing conceptual framework helps the researcher to identify the problems that are significant to the discipline of nursing **(Baley., 1991).**

The present study was aimed at assessing the effectiveness of kneading technique on level of joint pain among oldage people.

The investigator adopted modified **J. W. Kenny's Open System Model** as a basis for conceptual framework. According to J. W. Kenny, all living systems are open and they are in continuous exchange of matter energy and information, which results varying degree of interactions with environment from the system receives inputs and give back output in the form of matter, energy and information. System model consists of three phases input, throughput and output.

Input

Based on J.W. Kenny, matter, energy and information from the environment. In the present study environment refers to oldage home and input refers to the assessment of joint pain with modified extremities functional scale, collecting demographic data (age, sex, educational status, religion, marital status, dietary habits, duration of pain and taking drugs to relieve pain) from oldage people.

Throughput (Process)

According to him, matter, energy and information are continually processed through the system, which is called complex transformation, known as throughput. Process is the use of input that is energy and information for the maintenance of homeostasis of the system. It refers to the different operational procedures in the over all programme implementation and includes factors that facilitate or block implementation at various stages. In this study process includes providing kneading technique for experimental group by alternatively compressed and released in circular motion for every 3-4 seconds, 20 minutes for 5 days to relieve joint pain among old age people and no intervention provided for control group.

Output

J. W. Kenny noted after processing the input, the system returns to the output to (matter, energy and information) to the environment in an altered state. Change is a feature of the process that is observable and measurable as output which should be different from that which is entered into the system. In this study the output reveals that the kneading technique is effective on level of joint pain among oldage people in experimental group and no reduction in level of joint pain among old age people in control group.

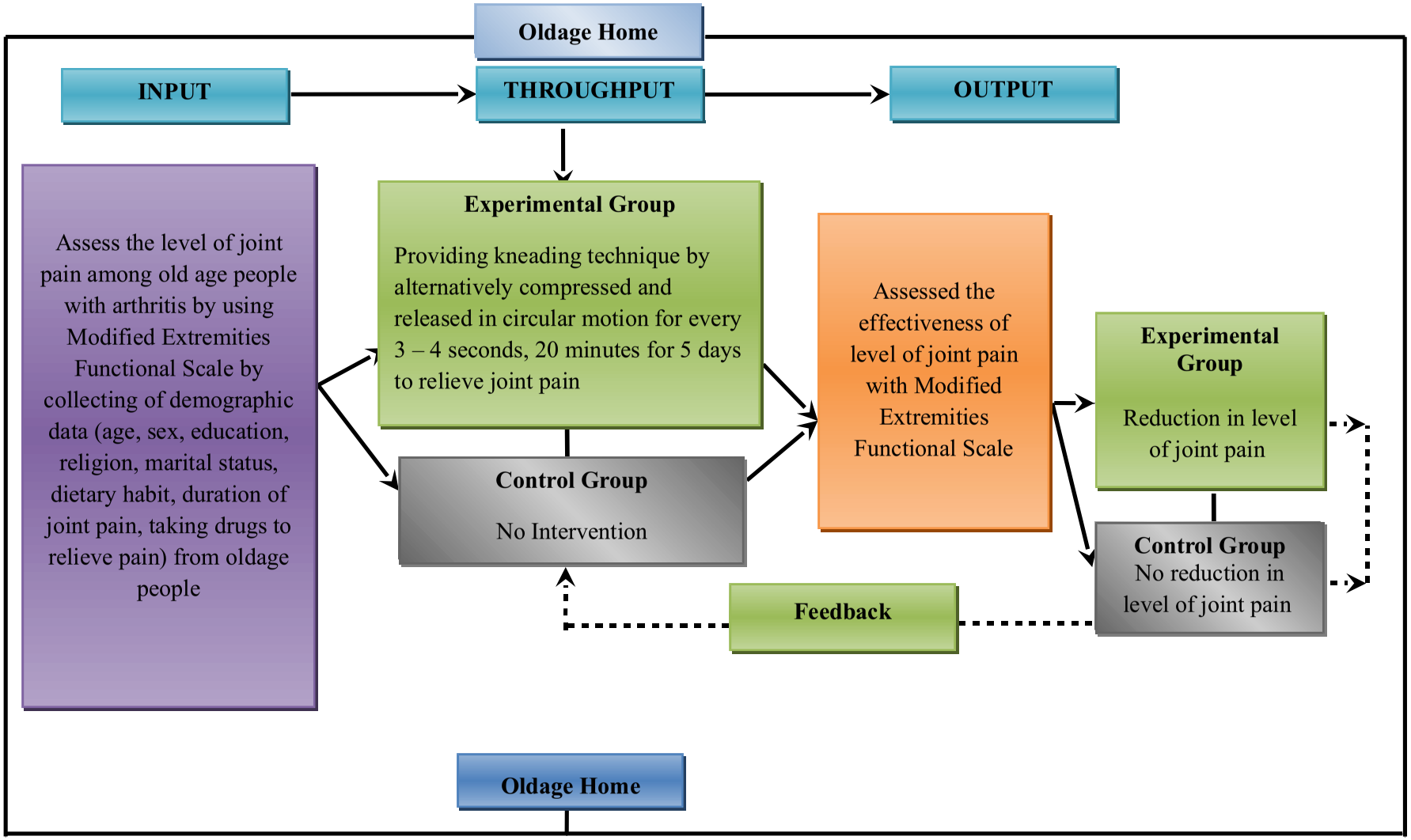

Figure. 1 Conceptual Framework Based on Modified J.W. Kenny's Open System Model (1969)

CHAPTER – II

REVIEW OF LITERATURE

Review of literature is an essential component of the research process. It aids the researcher in the formulation of the research plan or proposal and condition of the study. It aids in relating the outcomes of the study to the findings of other investigations. Review of literature is defined as a "critical summary of research on a topic of interest, often prepared to put a research problem in contest" **(Polit and Beck., 2006).**

This chapter deals with a review of published and unpublished research studies and from related material for the present study. The review helped the researcher to develop an insight into the problem area. This helped the researcher in building the foundation of the study.

The review of literature in this chapter is presented under the following headings

Section A: Studies Related to General View of Arthritis

Section B: Studies Related to Symptoms and Mobility Status in Arthritis

Section C: Studies Related to Effect of Kneading Technique

Section A: Studies Related to General View of Arthritis

Lieu C.M., (2008) conducted a retrospective study to investigate the association between squatting and the prevalence of tibio-femoral arthritis. A random sample of 72 Beijing residents more than 60 years were enquired about duration of squatting. Knee radiographs were taken. Among the study subjects 40% of the men and 60% of the women reported squatting one hour per day. This study concluded that prevalence of tibio-femoral arthritis was found to be increased in both men and

women who squatted more than 30 minutes per day compared to subjects who squatted less than 30 minutes per day.

Murphy L. Schwartz, (2008) conducted a longitudinal study to estimate the lifetime risk of symptomatic knee osteoarthritis and stratified by sex, race, education, history of knee injury and body mass index of black and white women and men age > or = 45years living in rural North Carolina. 100 subjects were participated in this study. Radiographic, socio-demographic and symptomatic knee data measured at baseline and first follow-up were analyzed. The result showed lifetime risk rose with increasing Body Mass Index with a risk of 75% among those who were obese. Nearly half of the adults will develop symptomatic knee osteoarthritis by age 85 yrs with life time risk highest among obese persons.

Rossignol. M, (2008) conducted a study on risk factor for developing Arthritis among a group of retired England Football players, and non retired players. Among them 51% of players who retired have football related injury were diagnosed with lower –limb Arthritis compared with 25% of players who did not retire have injury. It has concluded that knee injury in particular has been associated with almost 80% of sportsmen having radiographic arthritis, 20% of sportsmen were not having radiographic arthritis and hip injury have been associated with an overall 4.3 fold increase in the risk of hip arthritis.

Cetin, (2009) conducted a Comparative study to investigate the therapeutic effects of physical agents administered before isokinetic exercise in women with osteoarthritis. One hundred patients with bilateral osteoarthritis were randomized into five groups of 20 patients each received hot packs and isokinetic exercise with in addition of group 1 received short wave diathermy, the second group received transcutaneous electrical nerve stimulation, third group received ultrasound, fourth group received hot packs and isokinetic exercise and fifth group served as controls and received only isokinetic exercise. Pain and disability index scores were assessed by using Visual Analog Scale and scores on the sequence index. The results showed 50% of pain and disability index scores were significantly reduced in each group, but patients in the study groups had significantly greater reductions 75% in their visual analog scale scores and scores on the sequence index than in the controls group.

Reijman, (2009) conducted a cohort study in Jarkand, to investigate the relation between body mass index (BMI), the incidence and progression of radiological Arthritis. 2000 people aged above 55 years were participated in which 1575 participants are having high Body Mass Index (> 27kg/m^2) have identified by Kellgren and Lawrence Score at baseline grade 0 or 1 and they concluded that Body Mass Index is associated with the incidence and progression of Arthritis.

Spector T.D., (2009) conducted a twin study on genetic influences of Arthritis among women in Delhi. 100 subjects were assigned to each monozygotic and dizygotic twin group. Genetic test was assessed to these study subjects. This study showed that 89% of monozygotic twin having stronger genetic component to arthritis than the dizygotic twins. Hence, the study concluded that the specific gene col 9 A_1 coding for type 9 collagen has major influence for Arthritis is females across different population.

Yib Y.B., (2009) conducted an experimental study in Hong Kong to assess the effectiveness of arthritis self management programme with an added exercise component among arthritis clients. 100 subjects were assigned to each intervention group and control group respectively. Pain and fatigue was assessed by using Numerical Pain Rating Scale,Piper Fatigue Scale. Mann Whitney U-test and Friedman test revealed that intervention group had a positive effect in pain reduction and improvement of functional status than the control group. So, the study revealed that 78% of pain and 72% of fatigue was reduced in the experimental group.

Bedson. J, (2010) conducted a study to determine the prevalence of arthritis diagnosed in primary care centre. In this 146 cases and controls were reviewed by using X-ray at the time of first diagnosis. Among these 49% of cases and 15% of controls had a previous diagnosis of knee osteoarthritis. This study revealed that estimated prevalence of diagnosed knee osteoarthritis is much higher among general population aged $\geq$ 45 years of 12.5%.

Sharma M.K., (2010) conducted a epidemiological study to findout the prevalence of arthritis and its relations with it age, obesity, overweight, place of residence and anaemia among elderly people of Chandigarh from 9 sectors in the

urban area and from 7 villages in the rural areas by using systematic random sampling technique. The data was collected by house to house survey on a pre-designed and pre-tested format. The majority 66.6% of elderly belonged to age group 65-74 years, about 33.4% were aged >85 years. The overall prevalence of arthritis in rural areas it was 32.6% and in urban, it was 67.4% ($p<0.001$). Arthritis was more in females as compared to males (70% Vs 30%). Arthritis was present in only 50.2% of the elderly aged 65-74 years, whereas it was 97.7% in elderly aged 84 years or older ($p<0.001$). Prevalence of arthritis increased as body mass index (BMI) increased. It was 51.36% amongst elderly with BMI less than 25, whereas it increased to 100% amongst elderly with Body Mass Index equal to or more than 40 ($p<0.001$). The prevalence of arthritis amongst anaemic and non anaemic males as 61% and 40%.

Jordan J.M., (2011) conducted a Population based study in North California to estimate the prevalence of knee related osteoarthritis outcomes in African American and Caucasians aged more than 45 years. 3018 participants have been selected. Kellegran and Lawrence radiographic grading was used. 48% had radiographic knee arthritis, 28% had symptomatic knee arthritis and 24% had severe radiographic knee arthritis. It is concluded that higher prevalence was seen in older individuals especially among women and African Americans than Caucasians.

Section B: Studies Related to Symptoms and Mobility Status in Arthritis

Brosseau. L, (2009) conducted a study to assess the level of joint pain, edema, range of motion (ROM) and function of extremities among arthritis patients. 179 patients, were included as a study participants. Extremities functional scale was used to assess the level of joint pain, edema, range of motion and functions of extremities. The result showed that 34% of patients having joint pain, 20% of having edema, 24% of patients having decreased range of motion and 22% of having the loss of function of extremities. Hence, it is concluded that joint pain is higher among arthritis symptoms.

Eustice. C, (2009) conducted a study to assess the level of fatigue impact lives of arthritis patient at Newdelhi. In this study 28 men and 18 women were participated who had symptomatic arthritis. The study participants completed a

self administered questionnaire which includes demographics, severity of arthritis, depression and fatigue. The data were analysed and study revealed that 60% of subjects had fatigue which impacts daily activity of arthritis patients. Hence, it is concluded that fatigue play a major role in arthritis patient.

Pollock, (2009) conducted a study to assess the level of joint pain among arthritis patients. 47 adult subjects were selected for this study. Self-administration of the short form McGill Pain Questionnaire was used to measure the level of joint pain. The study reported that, 38% of subjects have severe joint pain, 30% have moderate joint pain, and 12% have mild joint pain. Hence, it is concluded that most of the patients have severe joint pain.

Theis K.A., (2009) conducted a study about "Arthritis Burden Greater for Women". Various national and statewide health surveys were conducted regarding various symptoms of this problems. The result was that joint pain in women is significantly higher than in men, 24.4% versus 18.1%, and disability 22.4% for women and 11% for men identified. This study revealed that women have higher burden on arthritis symptoms.

Schmitt L.C., (2010) conducted a comparative study at New York to investigate the knee movement and muscle activation strategies during walking of individuals with medial knee osteoarthritis. 28 cases and 28 controls were participated. Muscle activities strategies was assessed with activities of daily living scale and knee motion was assessed by motion analysis. It is reported that 75% of participant had less knee movement and 80% had higher muscle contraction. Independent's test and regression analysis revealed that osteoarthritis group used less knee motion and higher Muscle co-contraction during walking which was found to be detrimental to joint integrity.

Donald, (2011) conducted a study to assess the onset of arthritis may be related to a loss of knee motion after reconstructive surgery. The study examined data from 780 patients who were atleast five years after all reconstruction with a patellar tendon graft. In individual follow-ups, patients were evaluated and rated based on knee range of motion tests and radio graphs. The percentage of patients with normal radiographs was 45% patients showed normal range of motion

compared to 55% of patients showed deficits in range of motion. This study concluded that loss of knee motion causes arthritis.

Lin Y.C., (2011) conducted an experimental study to assess the physical function of older clients with clinical knee osteoarthritis. 106 sedentary subjects more than 60 years with knee osteoarthritis were participated in the study. Mobility, joint flexibility and muscle strength were evaluated by recording time to ascend 8 of descend 4 stairs, rise from sitting or sit down from chair (5 times). Using Spearman correlation walking, stairs climbing, chair rising were significantly correlated with each other and with the pain rating scale index ($p<0.001$). The study showed that, 49 subjects had severe physical dysfunction, 28 had moderate physical dysfunction and 29 had mild physical dysfunction.

Jorden. J, (2013) conducted a descriptive study from 1192 Africans and Caucasians to evaluate pain severity and mobility limitations in arthritis knee clients. Certain task which includes climbing, taking a tub bath, getting in and out of car were allotted for study subjects to assess the pain severity and mobility limitation. 43% reported that difficulty in performing single task, 30% have moderate pain in performing some task and 27% have mild pain in performing some task. The study concluded that knee pain severity was the strongest risk factor for performing upper and lower extremity tasks.

Section C: Studies Related to Effect of Kneading Technique

Odabasi, (2008) conducted an experimental study to reveal the efficacy of massage therapy treatment in patients with knee osteoarthritis. 60 clients were randomly allocated into 2 groups. The intervention and followed up for 24 weeks at 4 weeks intervals. A significant number of patients in the study group showed improvement as compared to the control group. The result showed that massage therapy had significantly improved the pain and functional status of patients with knee osteoarthritis.

Swami H.M., (2009) conducted an experimental study to evaluate effectiveness of massage therapy on joint pain and swelling among elderly in Pune (Maharashtra). 30 samples were selected, 26 females and 4 males for the study by using purposive sampling technique. Massage therapy was given for a period of 14

days. The tool used was Visual Analogue Scale and Questionnaire. The study results showed that out of 30 samples, 27 (90%) showed a reduction in joint pain and swelling.

Martina Skoog, (2010) conducted a study to examine the effects of kneading technique on joint pain, at the Karolinska Hospital, Stockholm, Sweden. Treatment was given over a 5 days period divided into two parts. Treatment periods contained kneading technique on back, neck, chest, leg, arm and face. Joint pain were assessed by using Numerical Pain Intensity Scale after and before intervention. 't' test were used to analyze the data. The study revealed that there was a significant reduction on joint pain after kneading technique.

Epub, (2011) conducted a study to assess the effectiveness of massage therapy in reduction of hand pain. By using Numerical Pain Scale was used to assess the level of pain. Forty six adults with hand pain for experimental group and forty six for control group were randomly assigned. The experimental group were massaged by a therapist on the affected hand once a week for a 4 week period and were also taught self massage on the hand that was to be done by the individual participant once daily. The study reported that, the experimental group had less pain than the control group after the massage therapy. Among the 46 adults, 26 had mild pain and 20 had moderate pain after kneading technique.

Cooke Marie, (2012) conducted a study to assess the effectiveness of kneading technique and traditional Thai massage in treating chronic low back pain. Pain was assessed by using visual analog scale for both groups. Both Thai and kneading technique are reported to relieve chronic low back pain by enhancing physical functions; providing pain relief, improving disability and range of motion, improving psychological functions; reducing anxiety and improving mood. Hence, the study revealed that both kneading technique and traditional thai massage have been equally effective in relieving chronic low back pain.

Peelman Ali. A, (2012) conducted a study on the effect of kneading technique among patients with knee arthritis . 125 adults with knee arthritis were randomly selected. Intervention was given for 30 minutes twice a week .It was assessed with WOMAC ,Visual analog pain scale and range of motion of the affected knee. The treatment method is determined optimal to reduce knee arthritis pain. The study

concluded that after the kneading technique, 68% of patients showed mild pain, 24% of patients showed moderate pain and 8% of patients showed severe pain.

Stuart Benney, (2012) conducted a study to assess the effect of kneading technique and aromatherapy massage techniques on joint pain among patients with arthritis.120 samples were selected for this study. The intervention was given 20 to 30 minutes for 5 days over the painful joints (knee, ankle, hip, shoulder, neck, elbow, wrist). The study concluded that after the kneading technique 75% of patients demonstrated less pain, stiffness and better joint function. In the aromatherapy massage technique also 75% of patients demonstrated less pain, stiffness and better joint function.

CHAPTER III

RESEARCH METHODOLOGY

Research methodology involves the systematic procedures by which the researcher starts from the initial identification of the problem to its final conclusion. It involves steps, procedures and strategies for gathering and analyzing data in a research investigation (**Denise F. Polit., 2011)**.

This chapter describes the methodology followed to evaluate the effectiveness of Kneading technique on joint pain among old age people with arthritis in selected old age homes at Kanyakumari District.

Research Design

Quasi - experimental with pre test post test control group design was adopted to this study.

Group	Pre test	Intervention	Post test
Experimental group	O_1	X	O_2
Control group	O_1	-	O_2

O_1 - pre test

X - intervention (kneading technique 20 minutes for 5 consecutive days)

O_2 - post test

Research Setting

The setting was chosen on the basis of availability of older adults and the co-operation extended by the Management of Religious group. The study was conducted among the old age people at “Trinity old age home” Thirithuvapuram which is facilitated with 60 beds and is 5kms away from Thasiah college of Nursing, Marthandam. Among 60 old age people, the researcher selected 30 old age people

with arthritis for experimental group and for the control group 30 old age people with arthritis were selected from “Home for the aged”, Pilankalai which is facilitated with 60 beds which is 12kms away from Thasiah college of Nursing, Marthandam. The researcher selected 30 old age people with arthritis from among the 60 old age people.

Variables

Independent variable : Kneading technique

Dependent variable **:** Level of Joint pain.

Population

The population of the study was Old people with arthritis residing in oldage homes.

Sample Size

The sample size constitutes 60 old age people with arthritis who had been identified with joint pain. Among these 30 old age people were taken for experimental group and 30 old age people were in control group.

Sampling Technique

Convenience sampling technique was used to select the samples for the study.

Sample Selection Criteria

Samples were selected based on the following criteria

Inclusion Criteria

- Old age people who have arthritis of joints such as knee, ankle, elbow and shoulder
- Both male and female old age people with arthritis
- Old age people with arthritis who are willing to participate
- Old age people above the age of 60 years
- Old age people whose screening score is below 75 by using Modified Extremities Functional Scale

Exclusion Criteria

- Old age people who have no sensation of pain
- Old age people with injured joint and fracture
- Old age people who had undergone surgery
- Old age people who are handicapped and bedridden

Description of the Tool

The tool comprises of three sections.

Section-A: **Demographic Variables**

Demographic variables are age, sex, educational status, religion, marital status, dietary pattern, duration of pain, taking drugs to relieve pain.

Section-B: **Modified Extremities Functional Scale**

Modified Extremities Functional Scale is designed to quantify a patient's joint pain. There are 25 items. All items were scored from 0 to 4 and each score was calculated as the sum of items included with score calculations of Modified Extremities Functional Scale.

Scoring and Interpretation:

0	-	None
1-25	-	Mild pain
26-50	-	Moderate pain
51-75	-	Severe pain
76-100	-	Extreme pain

Validity and Reliability

Validity of the tool was established with the consultation of the guide and seven experts, five M.sc nursing faculties with five years of experience, two expert orthopaedic practitioners. The experts were requested to give their opinion and suggestion for further modification of items to improve the clarity and content of the items. The final tool was prepared as per the suggestions and advice given by the experts.

Reliability of the tool was established using split half method. The reliability of the score is r =0.9, which showed a positive correlation. Hence, the tool was considered reliable for proceeding with the study.

Pilot Study

Pilot study is defined as, "a small-scale version or trial run, done in preparation of a major study" (**Denise F. Polit., 2011)**.

The pilot study was done after obtaining formal permission from the Principal and the ethical committee of Thasiah College of Nursing. The pilot study was conducted at "Trinity oldage home", Thirithuvapuram and "Home for the aged", Pilankalai after obtaining formal permission from the Director of the old age home. The pilot study was conducted in the month of January (25/1/15 to 31/1/15) for a period of one week. The researcher introduced herself to the study subjects and established good rapport. Then the researcher gave a short introduction about the study. The samples were selected using the convenience sampling technique. Based on inclusion criteria, six samples were selected. Three samples from Home for the

aged, Pilankalai were allotted for experimental group and Three samples from Trinity oldage home, Thirithuvapuram were allotted for the control group. Kneading technique was given for 20 minutes intermittently once a day for five consecutive days. The post test level of pain was evaluated on the fifth day for both groups using Modified Extremities Functional Scale. The researcher showed that the tool was reliable. The researcher has not found any practical difficulties during the time of study.

Data Collection Procedure

The researcher obtained permission from the directors of old age homes for conducting the study. Experimental group was selected from "Trinity old age home", Thirithuvapuram and control group was selected from "Home for the aged", Pilankalai. Old age people with arthritis with the age of 60 and above were selected for the study. The researcher assessed their level of joint pain with Modified Extremities Functional Scale. Among them only 60 (30 for experimental group and 30 for control group) old age people with arthritis having moderate and severe level of joint pain were taken as a sample by using convenience sampling technique. Information about the procedure was given to the samples of experimental group and obtained informed consent from experimental group.

The old age people with arthritis were made to sit or lie down in with the anterior and posterior part of the affected joint exposed. Applied the lubricant (powder) to reduce friction. Muscles and subcutaneous tissues are alternatively compressed and released. The movement takes place in a circular motion which is divided into two phase, pressure and release phase. During the pressure phase of each stroke, the hands and skin move together on the deeper structure and during the release phase, the hand glides smoothly over the skin. The basic direction of movement is circular which includes pressure phase and release phase, should be completed in 3-4 seconds. The time duration of Kneading was 20 minutes for five consecutive days. On the 5^{th} day, Post test was conducted on the same old age people in control group and experimental group for checking the effectiveness of the kneading technique by using Modified Extremities Functional Scale. All samples were cooperative during the data collection procedure.

Plan for Data Analysis

Data collected was analyzed using both descriptive and inferential statistics such as mean, standard deviation, chi square, paired 't' test and independent 't' test.

Descriptive Statistics

- Frequency and percentage distribution of samples according to demographic variables of old age people with arthritis.
- Frequency and percentage distribution were used to assess the level of Joint Pain.
- Mean and standard deviation were used to assess the effectiveness of kneading technique in reducing Joint pain.

Inferential Statistics

- Paired 't' test was used to compare pre test and post test level of Joint pain among old age people with arthritis in experimental group.
- Independent test was used to compare post test of both Control group and experimental group.
- Chi square test was used to find out the association of post test level of Joint Pain among old age people with their selected demographic variables.

POPULATION

Old age people who are at the age group of 60 and above with arthritis in two old age homes (Trinity old age home, Thirithuvapuram and Home for the aged, Pilankalai).

SAMPLING TECHNIQUE

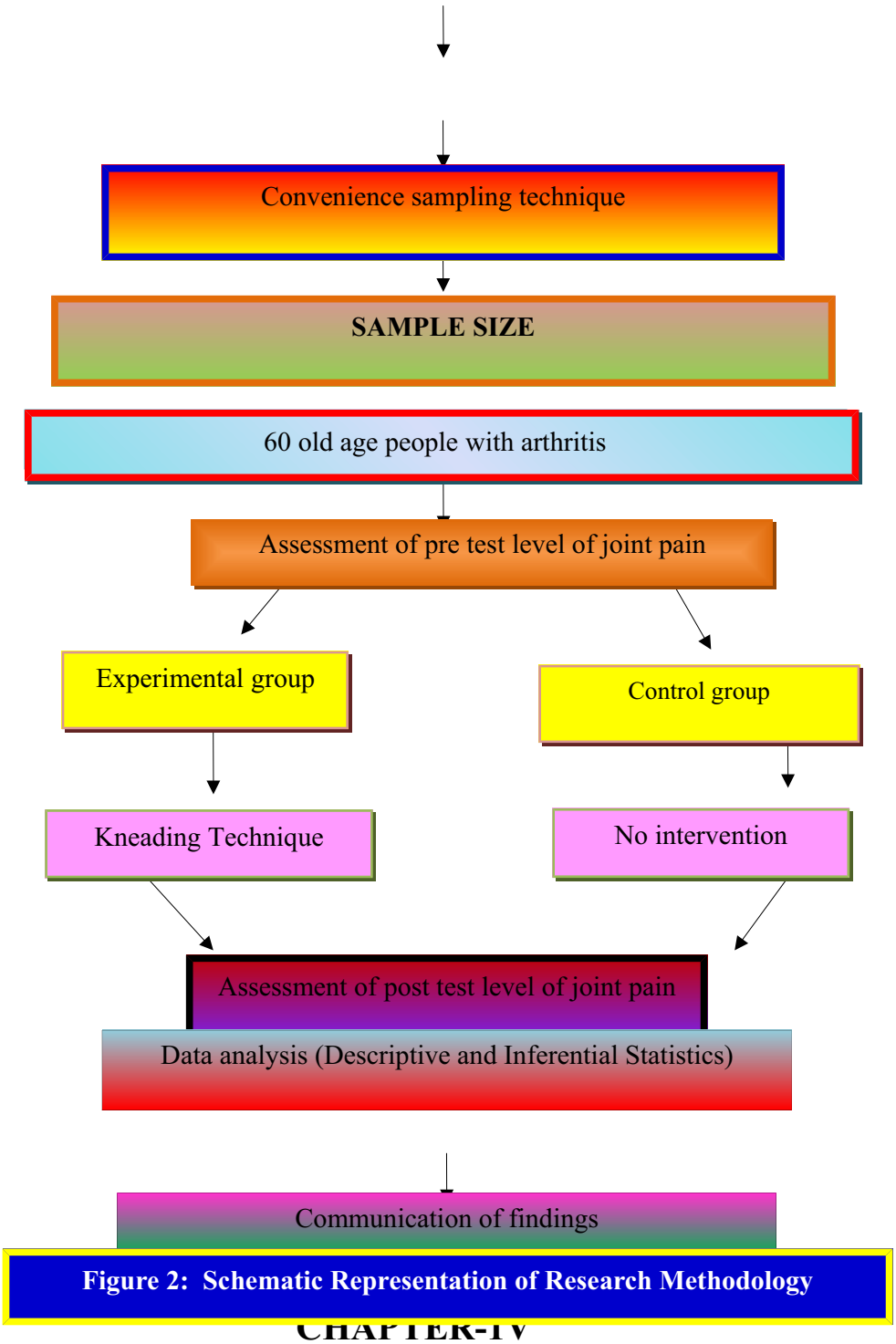

Figure 2: Schematic Representation of Research Methodology

CHAPTER-IV

DATA ANALYSIS

Introduction

The study was conducted to determine the effectiveness of Kneading technique on level of joint pain among oldage people with arthritis in selected oldage homes at Kanyakumari District. The obtained data were analyzed by both descriptive and inferential statistics. The test score were analyzed by statistical mean and standard deviation. The significance of the difference of mean score were interpreted by student paired 't' test and independent 't' test with the application of statistical package "SPSS" version (13.0) with the level of significance at 5% (P = 0.05%). The relationship and association were studied by chi-square test.

Organization of the Data

The data collected were tabulated and presented as follows:

Section-A: Distribution of demographic variables of old age people with Arthritis selected for the study.

Section-B: This section deals with the effect of kneading technique on reducing the level of joint pain among the selected old age people with Arthritis.

i. Assessment of joint pain in the both experimental and control group
ii. Comparison of the effectiveness of kneading technique on level of joint pain among old age people with arthritis in experimental group
iii. Comparison of pre test and post test score on level of joint pain among old age people with arthritis in control group
iv. Comparison of the post test score of joint pain among old age people with arthritis between experimental group and control group.

Section-C: Association of the post test scores of joint pain among the experimental group and control group with their selected demographic variables.

Section: A

Distribution of Samples According to the Demographic Variables

Table 1: Percentage Distribution of Samples According to Their Selected Demographic Variables

N =60

Sl. No.	Demographic Variables	Experimental Group (N=30) F	%	Control Group (N=30) F	%
1.	**Age**				
	a) 60 -69 years	6	20	10	33.33
	b) 70 -79 years	15	50	11	36.67
	c) 80 years and above	9	30	9	30
2.	**Sex**				
	a) Male	9	30	10	33.33
	b) Female	21	70	20	66.67
3.	**Educational Status**				
	a) Illiterate	9	30	9	30
	b) Primary	10	33.33	13	43.33
	c) High school	5	16.67	4	13.33
	d) Higher Secondary	3	10	2	6.67
	e) Graduates	3	10	2	6.67
4.	**Religion**				
	a) Hindu	6	20	11	36.67
	b) Christian	21	70	16	53.33
	c) Muslim	3	10	3	10
5.	**Marital status**				
	a) Married	11	36.67	10	33.33
	b) Unmarried	7	23.33	3	10
	c) Widow / Widower	12	40	17	56.67
Table	**1 continues…**				
6.	**Dietary habits**				
	a) Vegetarian	0	0	0	0
	b) Non- vegetarian	30	100	30	100
7.	**Duration of pain**				
	a) Below 2 years	9	30	11	36.67
	b) 2-4 years	13	43.33	11	36.67
	c) Above 4 years	8	26.67	8	26.66
8.	**Taking drugs to relieve pain**				
	a) Yes	9	30	5	16.67
	b) No	21	70	25	83.33

Table 1 shows the samples according distribution of 30 old age people with arthritis according to the demographic variables. Distribution of 30 oldage people with arthritis according to the age, in the experimental group 6 (20%) old age people belonged to the age between 60-69 years,15(50%) old age people were in the age

group of 70-79 years, 9(30%) old age people were in the age of 80 and above, whereas in the control group out of 30 old age people with arthritis 10(33.33%) old age people belonged to the age between 60-69 years, 11(36.67%) old age people were in the age group of 70-79 years and 9(30%) old age people were in the age of 80 and above.

Scattering of old age people with arthritis according to the sex was done. In the experimental group, out of 30 old age people with arthritis 9(30%) were male and 21(70%) were female. In the control group, out of 30 old age people with arthritis, 10(33.33%) were male and 20(66.67%) were female.

Allocation of old age people with arthritis according to the educational status was done. In the experimental group, out of 30 old age people with arthritis 9(30%) were illiterate, 10(33.33%) had primary level schooling, 5(16.67%) had high level schooling, 3(10%) had higher secondary level schooling and 3(10%) were graduates. In the control group, out of 30 old age people with arthritis 9(30%) were illiterate, 13(43.33%) had primary level schooling, 4(13.33%) had high level schooling, 2(6.67%) had higher secondary level schooling and 2(6.67%) were graduates.

Dispersion of old age people with arthritis according to the religion was done. In the experimental group, out of 30 old age people with arthritis, 6(20%) were Hindus, 21(70%) were Christians and 3(10%) were Muslim. In the control group, out of 30 old age people with arthritis, 11(36.67%) were Hindus, 16(53.33%) were Christians and 3(10%) were Muslim.

Distribution of old age people with arthritis according to the marital status was done. In the experimental group, out of 30 old age people with arthritis 11(36.67%) were married, 7(23.33%) were unmarried and 12(40%) were widow/widowers. In control group, out of 30 old age people with arthritis, 10(33.33%) were married, 3(10%) were unmarried and 17(56.67%) were widow /widowers.

Allocation of old age people with arthritis according to the dietary habits was done. In the experimental group out of 30 old age people with arthritis, 30(100%) were non vegetarian and none of them was a vegetarian. In control group, out of 30

old age people with arthritis, 30(100%) were non vegetarian and none of them was a vegetarian.

Distribution of old age people with osteoarthritis according to the duration of pain was done, in the experimental group out of 30 old age people with arthritis, 9(30%) had below 2 years of duration, 13(43.33%) had 2- 4 years of duration and 8(26.67%) had above 4 years of duration. In control group, out of 30 old age people with arthritis, 11(36.67%) had below 2 years of duration, 11(36.67%) had 2-4 years of duration and 8(26.66%) had above 4 years of duration.

Allocation of old age people with taking drugs to relieve pain was done. In the experimental group, out of 30 old age people with arthritis, 9(30%) were taking drugs to relieve pain and 21(70%) were not taking drugs to relieve pain. In the control group out of 30 old age people with arthritis, 5(16.67%) were taking drugs to relieve pain and 25(83.33%) were not taking drugs to relieve pain.

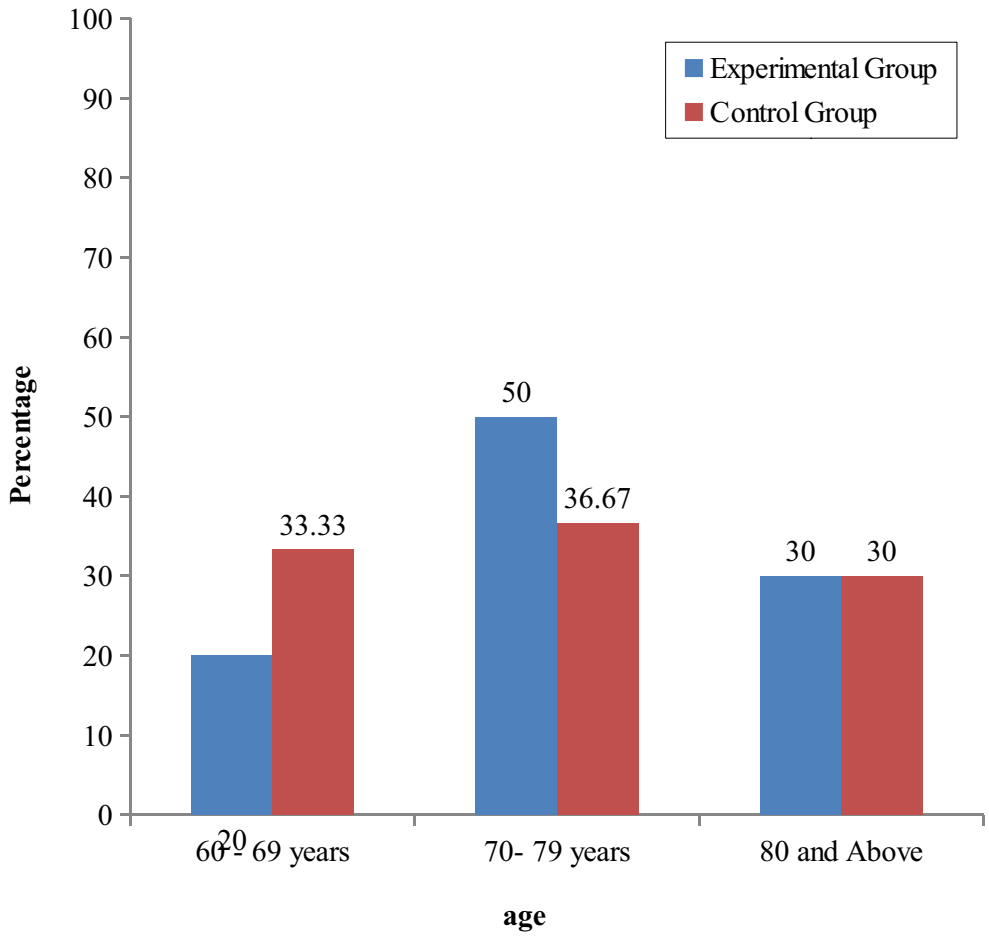

Figure 3: Percentage Distribution of Samples According to Their age

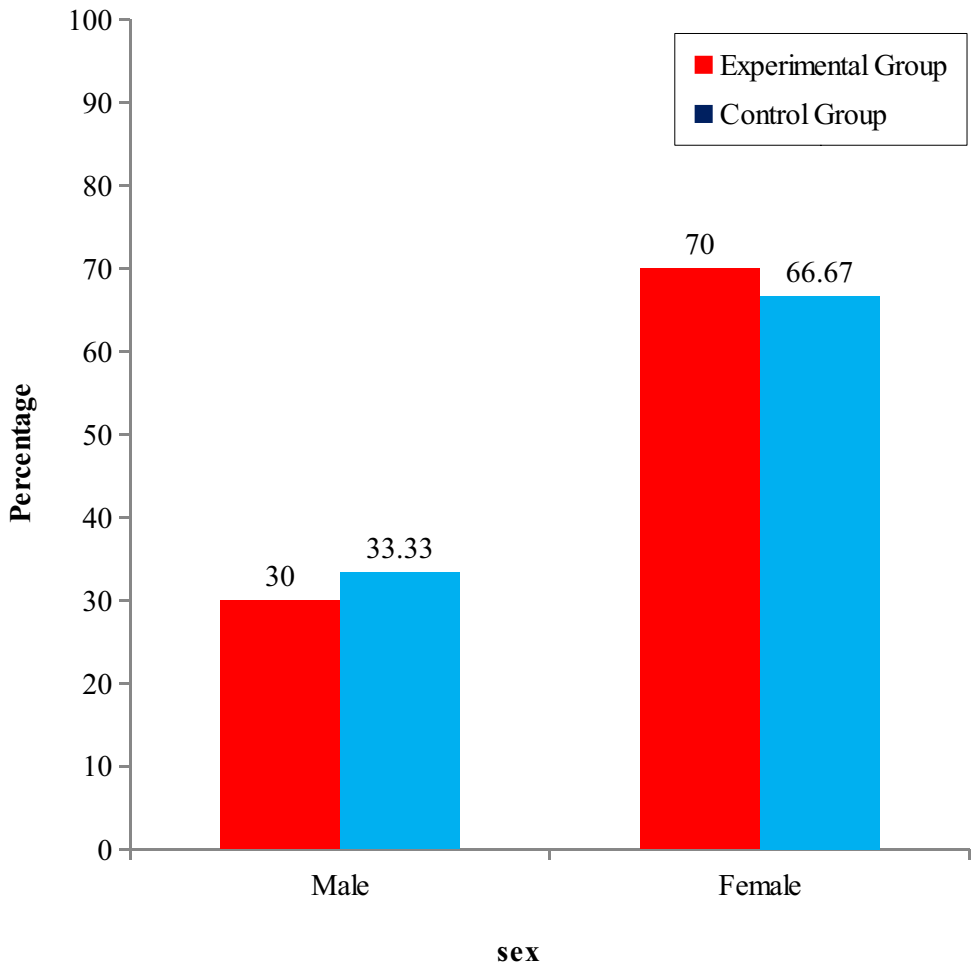

Figure 4: Percentage Distribution of Samples According to Their sex

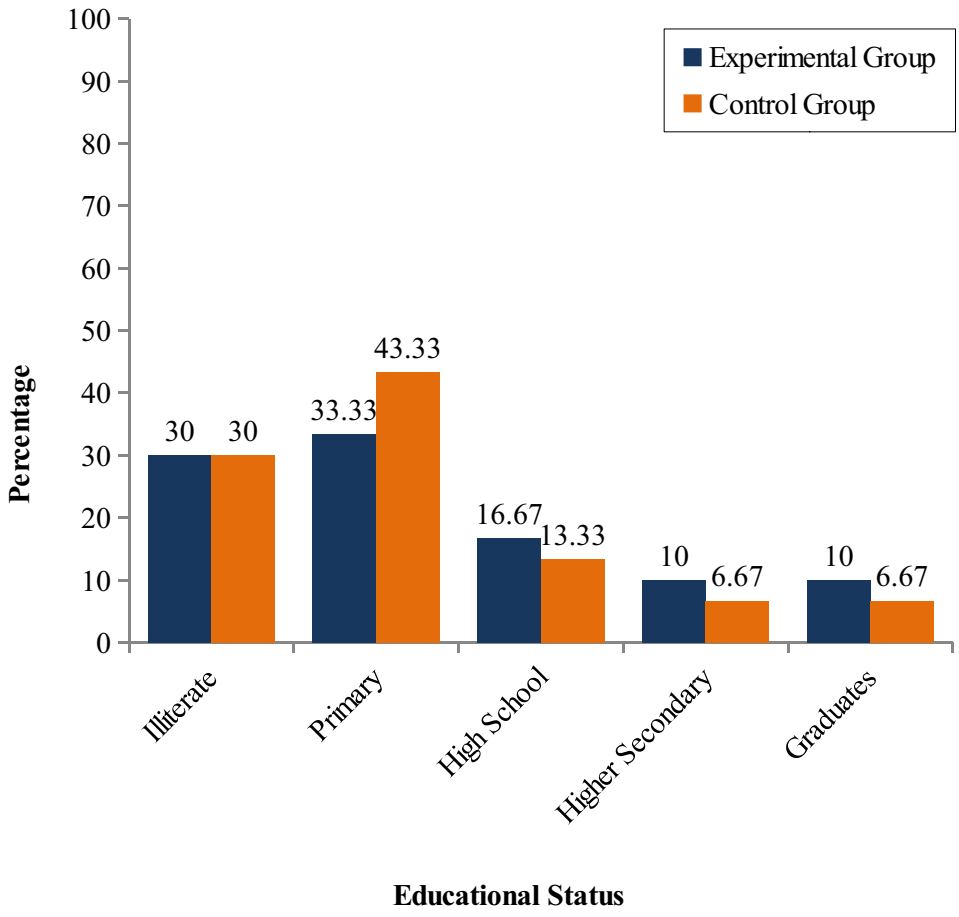

Figure 5: Percentage Distribution of Samples According to Their Educational Status

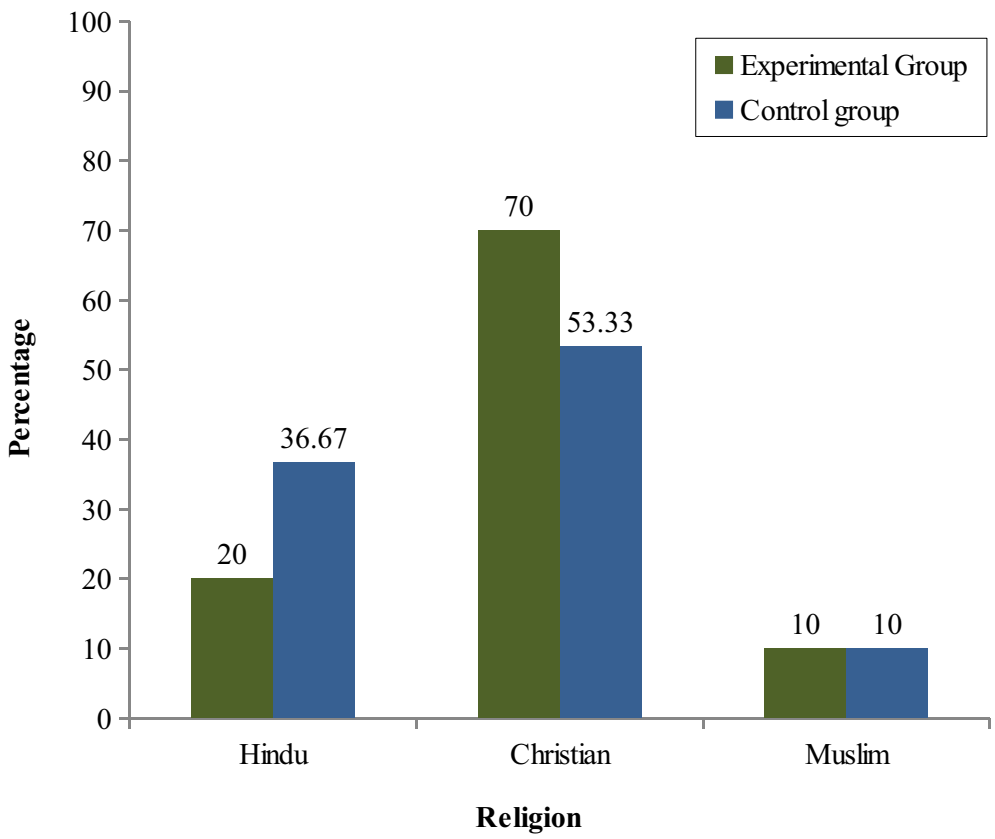

Figure 6: Percentage Distribution of Samples According to Their Religion

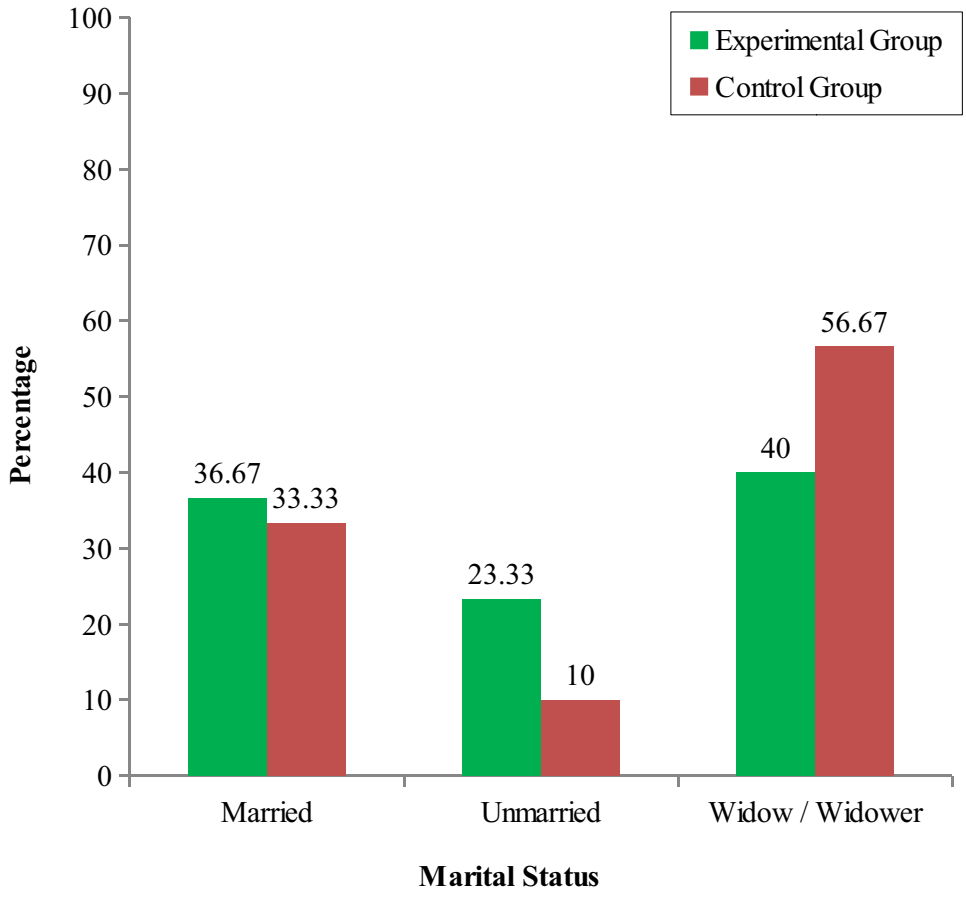

Figure 7: Percentage Distribution of Samples According to Their Marital Status

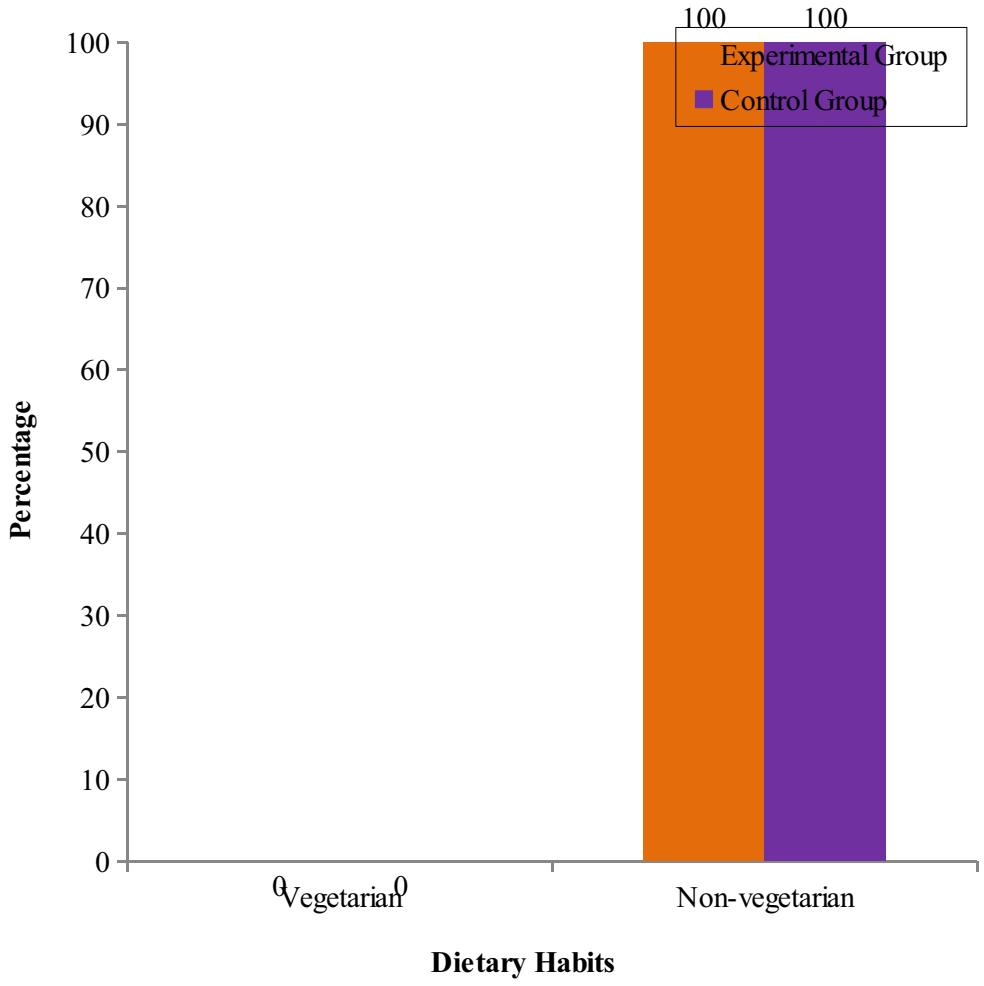

Figure 8: Percentage Distribution of Samples According to Their Dietary Habits

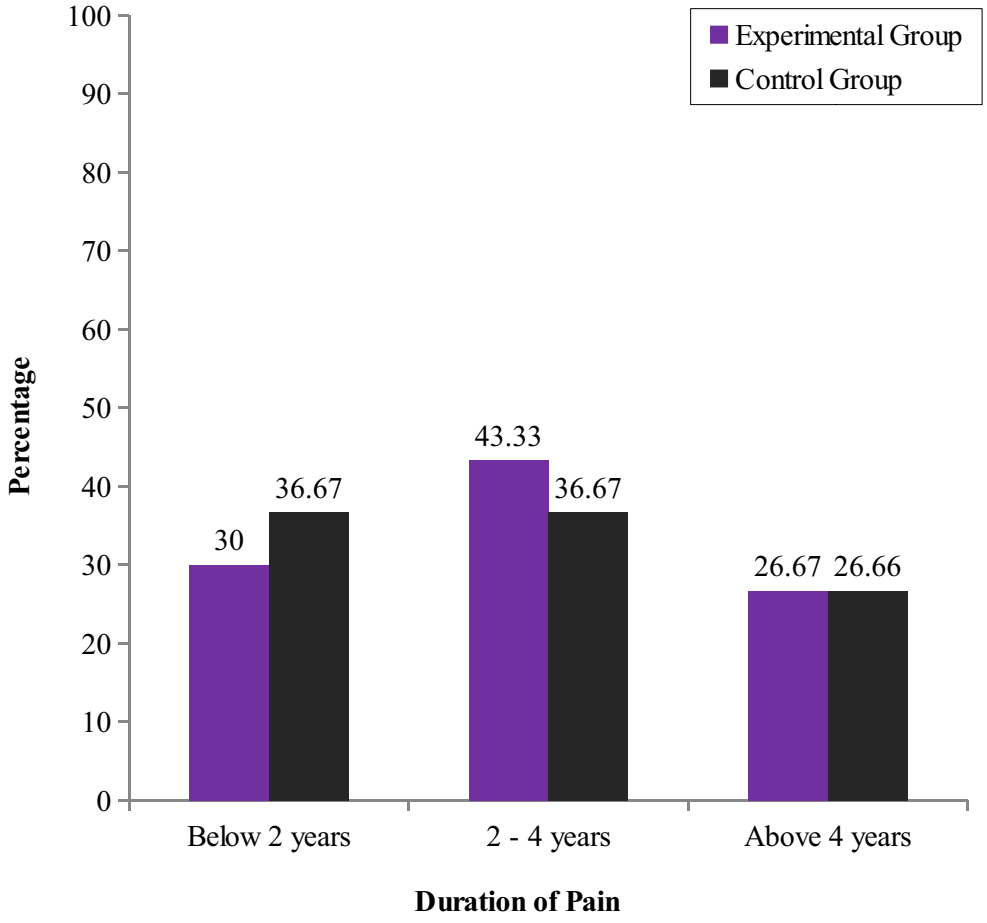

Figure 9: Percentage Distribution of Samples According to Their Duration of Pain

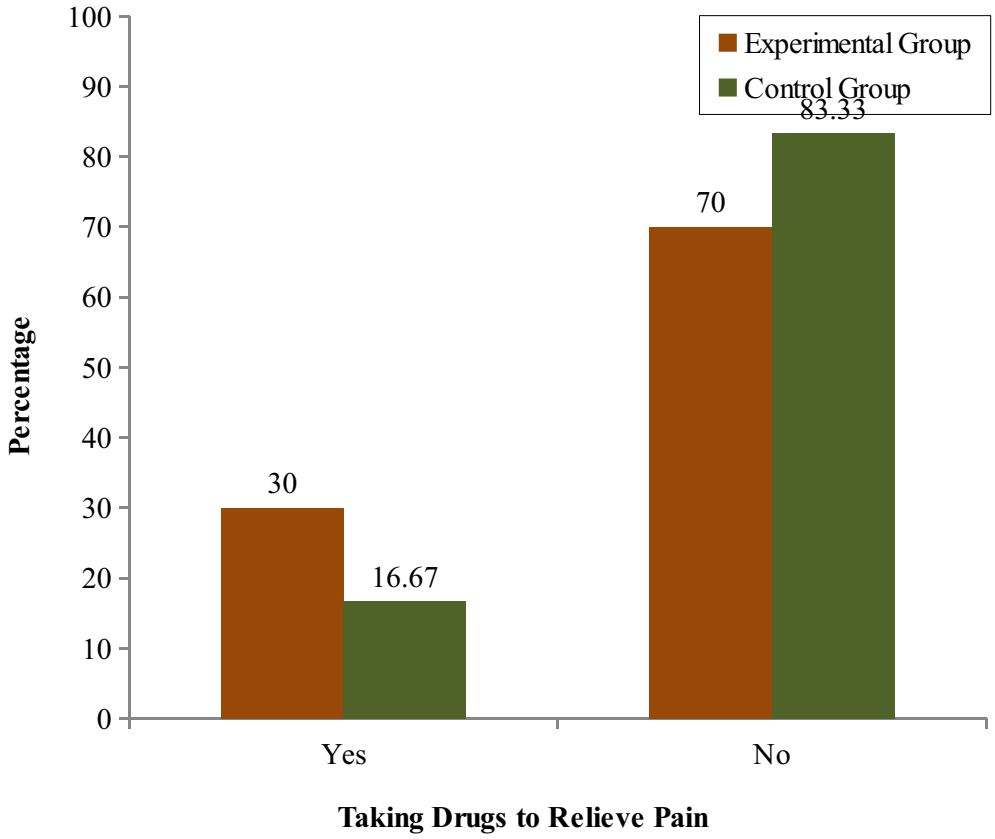

Figure 10: Percentage Distribution of Samples According to Their Taking Drugs to Relieve Pain

Section: B

Table 2: Assessment of Joint Pain in Both Experimental and Control Group

(N =60)

Sl.No.	Scores		Group			
			Experimental (N =30)		Control (N =30)	
			F	%	F	%
1	Pre score	No pain	0	0	0	0
		Mild pain	0	0	0	0
		Moderate pain	12	40	14	46.67
		Severe pain	18	60	16	53.33
		Extreme pain	0	0	0	0
2	Post score	No pain	0	0	0	0
		Mild pain	18	60	0	0
		Moderate pain	12	40	17	56.67
		Severe pain	0	0	13	43.33
		Extreme pain	0	0	0	0

Table 2 shows that the pre test scores of joint Pain, in the experimental group, out of 30 samples, 12(40%) had moderate joint pain and 18(60%) had severe joint pain.

With regard to the pre test scores of joint pain, in Control group, out of 30 old age people with arthritis 14(46.67%) had moderate joint pain and 16(53.33%) had severe joint pain.

With regard to the post test scores of joint pain, in the experimental group, out of 30 old age people with arthritis, 18(60%) had mild joint pain and 12(40%) had moderate joint pain.

With regard to the post test scores of joint pain, in control group, out of 30 old age people with arthritis 17(56.67%) had moderate joint pain and 13(43.33%) had severe joint pain.

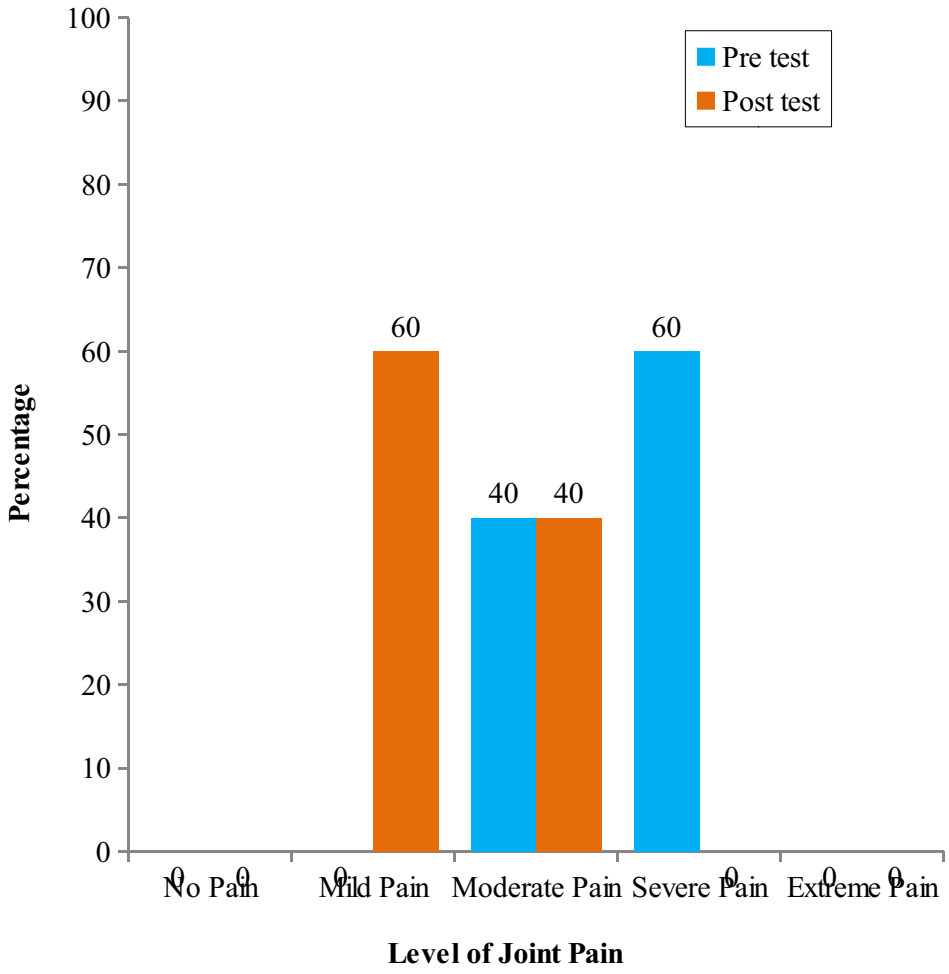

Figure 11: Percentage Distribution of Pre and Post-test Level of Joint Pain Among Experimental Group

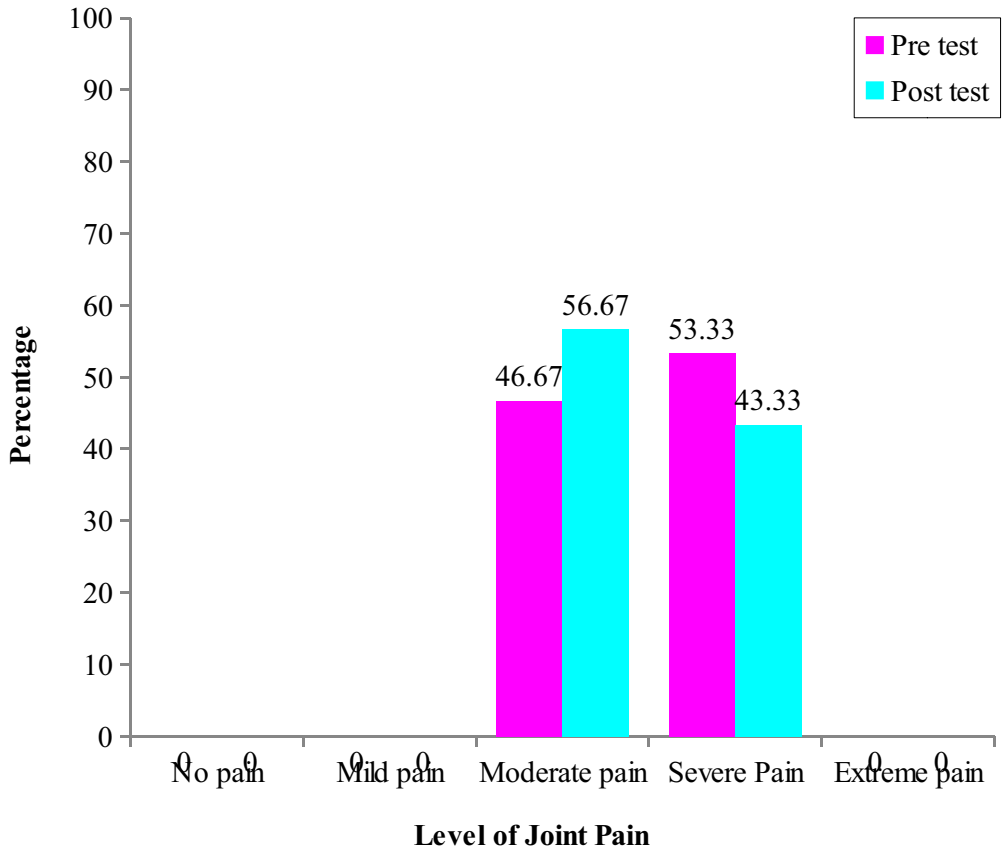

Figure 12: Percentage Distribution of Pre and Post-test Level of Joint Pain Among Control Group

Table 3: Comparison of the Effectiveness of Kneading Technique on Level of Joint Pain Among Oldage People With Arthritis in Experimental Group

(N = 30)

Sl. No.	Test	Mean	SD	MD	t-value	P-value
1.	Pre test	52.56	7.1			
				27.46	16.74*	2.042
2.	Post test	25.1	6.95			

***Significant at 0.05% (df=29)**

Table 3 represents, the mean score on level of joint pain among old age people with arthritis in the experimental group was 52.56 in pre test and 25.10 in post test. The paired 't' value was 16.74 which is significant at $p < 0.05$. It shows that kneading technique was effective in reduction of joint pain among old age people with arthritis in the experimental group. Hence the research hypothesis is accepted.

Table 4: Comparison of Pre-test and Post-test Score on Level of Joint Pain Among Oldage People With Arthritis in Control Group

(N = 30)

Sl. No.	Test	Mean	SD	MD	t-value	P-value
1.	Pre test	51.63	7.71			
				0.85	1.31	2.042
2.	Post test	52.48	8.05			

Table 4 represents, the mean score on level of joint pain among old age people with arthritis in control group was 51.63 in pre test and 52.48 in post test. The paired 't' value was 1.31 which is not significant at $P < 0.05$.

Table 5: Comparison of the Post-test Score of the Joint Pain Among Oldage People With Arthritis Between Experimental and Control Group

(N = 60)

Sl. No.	Group	Mean	SD	MD	t-value	P-value
1.	Experimental	25.10	6.95			
				27.38	13.89*	2.00
2.	Control	52.48	8.05			

***Significant at 0.05% (df=58)**

Table 5 revealed that, the mean post test score in the experimental group was 25.10 with standard deviation of 6.95 whereas in the control group, the mean post test score was 52.48 with standard deviation of 8.05. The mean difference was 27.38. The obtained independent 't' test value was 13.89 which is more than the table value (P = 2.00) with the degree of freedom 58 at 0.05 level of significance. Hence the Research Hypothesis (H_1) is accepted and it is inferred that kneading technique is effective in reducing the level of joint pain among the old age people with arthritis in the experimental group than in the control group.

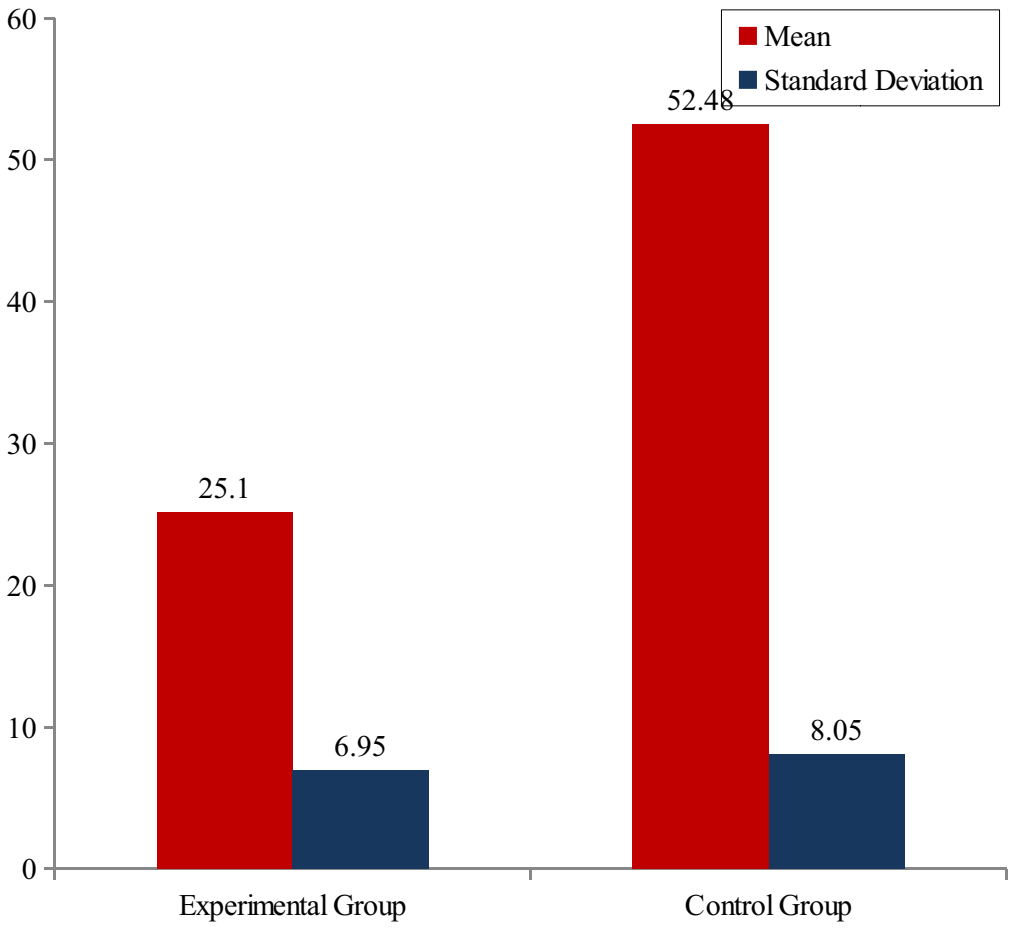

Figure 13: Mean and Standard Deviation of Post-test Score of Experimental Group and Control Group

Section: C

Table 6: Association of the Post-test Scores of Joint Pain Among the Experimental Group and Control Group With Their Selected Demographic Variables

(N=60)

Sl. No	Demographic Variables	Experimental group(n=30) χ^2	df	Significance	Control group(n=30) χ^2	df	Significance
1.	Age	6.88*	2	P < 0.05	8.97*	2	P < 0.05
2.	Sex	0.22	1	P > 0.05	0.043	1	P > 0.05
3.	Educational Status	4.18	4	P> 0.05	5.16	4	P > 0.05
4.	Religion	2.31	2	P > 0.05	1.78	2	P > 0.05
5.	Marital Status	2.78	2	P > 0.05	1.52	2	P > 0.05
6.	Duration of Pain	6.26*	2	P < 0.05	7.03*	2	P < 0.05
7.	Taking drugs to relieve pain	4.47*	1	P < 0.05	1.33	1	P > 0.05

Table 6 shows that in the experimental group, with regard to age, duration of pain the chi-square value was 6.88 and 6.26. The table value at 2 degrees of freedom was 5.99 which was significant at 0.05 level. Regarding taking drugs to relieve pain the chi-square value was 4.47. The table value at 1 degree of freedom was 3.84 which was significant at 0.05 level. There was no significant association between the level of joint pain among the old age people with Arthritis and the other demographic variables.

In the control group, on considering the age, duration of pain the chi-square was 8.97 and 7.03. The table value at 2 degrees of freedom was 5.99 which was significant at 0.05 level. There was no significant association between the level of joint pain among the oldage people with Arthritis and the other demographic variables.

CHAPTER-V

DISCUSSION

This chapter deals with the discussion of the data analyzed, based on the objective and hypothesis of the study. The problem stated was "A study to assess the effectiveness of kneading technique on joint pain among old age people with arthritis in selected old age homes at Kanyakumari District." The discussion was based on the objectives of the study and the hypotheses mentioned in the study.

The First Objective of the Study was to Assess the Level of Joint Pain Among Oldage People With Arthritis Before Kneading Technique in Experimental and Control Group.

The analysis of pre-test reveals the assessment of level of joint pain of selected oldage people with arthritis before providing kneading technique. There was no mild and extreme pain among old age people with arthritis. In the experimental group, 12(40%) had moderate pain and 18(60%) had severe pain and the mean score was 52.56 with the standard deviation 7.10 and in the control group, 14(46.67%) had moderate pain and 16(53.33%) had severe pain and mean pain score was 51.63 with the standard deviation 7.71.

The findings of the study was supported by Deborah Osbourn's, (2009) study to assess the level of joint pain among arthritis patients. 60 adult subjects were selected using convenience sampling technique for this study. Self-administration of the extremities functional scale was used to measure the level of joint pain. The study reported that 48.2% of subjects had severe joint pain, 30.5% had moderate joint pain, and 21.3% had mild joint pain. Hence it is concluded that most of the patients had severe joint pain.

J.W. Kenny's open system model helping art of clinical nursing theory based on the first step was to identify the prevalence of joint pain among old age people with arthritis by doing the pretest assessment. Here, the investigator identified that in the experimental group out of 30 samples, 12(40%) had moderate joint pain and

18(60%) had severe joint pain and in control group, out of 30 old age people with arthritis, 14(46.67%) had moderate joint pain and 16(53.33%) had severe joint pain.

The Second Objective was to Assess the Effectiveness of Kneading Technique on Level of Joint Pain Among Oldage People With Arthritis in Experimental Group.

The mean score on level of joint pain among old age people with arthritis in the experimental group was 52.56 in pre test and 25.10 in post test. The paired 't ' value was 16.74 which was significant at $p < 0.05$. It shows that kneading technique was effective in reduction of joint pain among oldage people with arthritis in the experimental group. Hence the research hypothesis was accepted.

The hypothesis was supported by Shreej Maharajan's (2013) study to check the effectiveness of kneading technique in knee arthritis in Bangalore. 60 symptomatic subjects of both sexes were randomly taken and divided into two groups of 30 in each (experimental and control) group. Kneading technique was given to experimental group for 2 weeks. The tools used were Western Ontario and McMaster Universities Osteoarthritis Score (WOMAC) and Visual Analog Scale (VAS). The findings of the study showed that in experimental group, the mean post test score was 11.8 with the standard deviation 7.5. The calculated independent 't' test value was 13.9 which showed a significant difference in the experimental and control group.

Based on this theory, the second step was providing intervention to experimental group. Here the investigator gave intervention to experimental group. Then compared the pre test and post test level of joint pain among old age people with arthritis in experimental group. Based on the calculation the result showed that kneading technique was effective in experimental group.

The Third Objective was to Compare the Post-test Level of Joint Pain Among Oldage People With Arthritis Between Experimental Group and Control Group.

Comparing the post test score of level of joint pain among old age people with arthritis between experimental and control group. The mean post test score in experimental group was 25.10 with standard deviation of 6.95 whereas in the control group, the mean post test score was 52.48 with standard deviation of 8.05. The mean

difference was 27.38. The obtained independent 't' test value was 13.89 which was more than the table value (P=2.00) with the degree of freedom 58 at 0.05 level of significance. Hence the Research Hypothesis (H_1) was accepted and it was inferred that kneading technique was effective in reducing the level of joint pain among old age people with arthritis in experimental group than the control group.

The hypothesis was supported by Skoog, (2010) to examine the effects of kneading technique on joint pain, at the Karolinska Hospital, Stockholm, Sweden. Treatment was given over a 5 days period divided into two parts which contains kneading technique on back, neck, chest, leg, arm and face. Joint pain was assessed by using Numerical Pain Intensity Scale after and before intervention. They analyzed the data using 't' test result revealed that there was a significant reduction on joint pain after kneading technique

Based on the theory, third step was evaluating the effectiveness of intervention. Here in the experimental group there was reduction in the level of joint pain and in the control group there was no reduction in the level of joint pain.

The Fourth Objective was to Find out the Association Between the Level of Joint Pain Among Oldage People With Arthritis With Their Selected Demographic Variables.

The significant reduction was made by the effectiveness of kneading technique in relieving joint pain among old age people with arthritis with the influence of demographic variables like age, duration of pain and taking drugs to relieve pain in the experimental group and demographic variables like age and duration of pain in the control group. There was an association between the age, duration of pain and taking drugs to relieve pain in the experimental group and there was an association between age and duration of pain in the control group for the post test score ($p < 0.05$).

The significant reduction was made by the effectiveness of kneading technique in relieving joint pain among old age people with arthritis without the influence of demographic variables such as sex, educational status, religion, marital status in the experimental and control group, taking drugs to relieve pain in the control group.

There was no association between the demographic variables and the level of joint pain in the post test score ($p < 0.05$).

From the above results and discussion clearly stated that there was a significant association of level of joint pain with the demographic variables like age, duration of pain and taking drugs to relieve pain. Hence the researcher accepted the research hypothesis and there was no significant association of level of joint pain with the demographic variables such as sex, educational status, religion and marital status. Hence the researcher rejected the research hypothesis.

CHAPTER -VI

SUMMARY AND RECOMMENDATION

This chapter deals with the summary of the study, limitations and conclusion drawn from the study. It also explains the implications of the study, for different areas like nursing education, nursing administration, nursing practice and nursing research.

Summary of the Study

The study was conducted to find out the effectiveness of kneading technique on joint pain among old age people with arthritis in selected old age homes at Kanyakumari District.

Objectives of the Study

- To assess the level of joint pain among old age people with arthritis before kneading technique in experimental and control group.
- To assess the effectiveness of kneading technique on level of joint pain among old age people with arthritis in experimental group.
- To compare the post test score of joint pain among old age people with arthritis between experimental group and control group.
- To find out the association between the level of joint pain among old age people with arthritis with their selected demographic variables.

Hypotheses

H_1 There is a significant difference in the level of joint pain after kneading technique among old age people with arthritis in experimental group than the control group.

H_2 There is a significant association between the level of joint pain among old age people with their selected demographic variables.

This study was undertaken to assess the effectiveness of kneading technique in reducing the joint pain among old age people with Arthritis. Quantitative research approach was used. Quasi – Experimental with pre test post test control group design was adopted to this study. The study was conducted among the old age people at

Trinity old age home, Thirithuvapuram and Home for the aged, Pilankalai. Convenience sampling technique was used to select 30 old age people with arthritis for Control group and 30 old age people with arthritis for experimental group.

Data collection was done by using Modified Extremities Functional Scale. Kneading technique was administered for experimental group. The data gathered were analyzed by descriptive and inferential statistical method and interpretation was done on the basis of the objectives of the study.

Study Findings

The data was collected and analyzed by using descriptive and inferential statistics. The findings revealed that there was highly significant difference in level of joint pain among old age people with arthritis after the administration of kneading technique. In the post test the result shows that, the mean post test score in experimental group was 25.10 with standard deviation of 6.95 whereas in control group, the mean post test score was 52.48 with standard deviation of 8.05. The mean difference was 27.38. The obtained independent‘t’ test value is 13.89 which is more than the table value (P=2.00) with the degree of freedom 58 at 0.05 level of significance. Hence the Research Hypothesis (H_1) was accepted and it was inferred that kneading technique is effective in reducing the level of joint pain among old age people with arthritis in experimental group than the control group.

Conclusion

From the results of the study, it is concluded that rendering kneading technique to the oldage people with arthritis was effective in reducing the joint pain. This alternative therapy was not only cost effective but also easy to follow. The old age people with arthritis can include this therapy in their routine activities. The oldage people’s leisure time may be enough and utilized for doing these kneading technique.

Nursing Implications

The researcher has derived the following implication from the study results which are of vital concern to the field of nursing service, nursing administration, nursing education and nursing research. By assessing the effectiveness of Kneading technique to reduce the level of joint pain among old age people with arthritis, we got a clear picture regarding different steps to be taken in all fields, to improve the standard of nursing profession and implement evidence based practice in health set up.

Nursing Practice

Professionally accountable nurses should base many of the nursing intervention as possible on research findings. Kneading technique can be used as a nursing intervention in reducing the level of joint pain among old age people with arthritis.

- Nurses should be knowledgeable regarding the benefits of Kneading technique in reducing the level of joint pain
- Nurse can implement the Kneading technique to improve patient quality of life in aspects of pain reduction as a complimentary therapy for old age people
- Kneading technique is an effective measure to reduce the level of joint pain. Nurse can make this therapy as an effective measure to enhance the coping strategies of old age people

Nursing Education

A Nurse educator is not primarily to teach, but to promote learning and provide the environment conducive to learning and create the teacheable moment rather than first waiting for it to happen.

- The nurse educators need to be equipped with adequate knowledge regarding Kneading technique
- Nursing students should receive adequate training regarding Kneading technique
- Conduct workshops or conferences for students regarding the use of Kneading technique, in day today nursing practice

- ❖ Strengthen the curriculum for nurses to excel them in knowledge and skill in areas of various complimentary therapy modalities

Nursing Administration

A Nurse administrator manages the client care and the delivery of specific nursing services within a health care agency.

- ❖ Kneading technique can be recommended in hospital along with routine management of reducing the level of joint pain to the old age people with arthritis.
- ❖ Nurse administrator can recognize Kneading technique as a cheap, cost effective method in the management of reducing the level of joint pain to the old age people with arthritis.
- ❖ Public information programmes and information education communication package may be designed by nurses to encourage Kneading technique

Nursing Research

The research implication of the study lies in the scope for expanding the quality of nursing service. In the era of evidence based practice, publication of these studies will take nursing to new horizon.

- ❖ Nurses should conduct research for further clarifications of the benefits and optimal association of Kneading technique
- ❖ Encouragement should be fostered among various research institutions, health associations to conduct further research on the effect of Kneading technique
- ❖ Disseminate the findings of research through conferences, seminars and publishing in journals
- ❖ Teachers can direct and motivate the nursing researchers. So that they can conduct research in the same, different specialties and thereby professional independence can be achieved.

Limitations

- There were very few studies done on the effectiveness in national level, the investigator had a lot of difficulties in collecting the study materials for the review.
- The sampling size was limited to 60 (30 in experimental group and 30 in control group)
- The data collection period was limited to one month

Recommendations

The following steps can be undertaken to strengthen the study

- The study can be conducted among larger sample for the better generalization.
- The study can be conducted in different settings.
- Comparison between kneading technique and other non – pharmacological methods can be done.
- Kneading technique can be included in the hospital policy.

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LETTER SEEKING PERMISSION TO CONDUCT THE STUDY

THASIAH COLLEGE OF NURSING

(Approved by Govt, of Tamilnadu, TN-Nurses & Midwives Council
Indian Nursing Council & Affiliated to Dr. M.G.R. Medical University)
Marthandam, Vellivilagam, Viricode - 629 165
Kanyakumari District. Tamil Nadu, India.
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Mr.C.Thasian
Chairman

22/12/2014

From

The Principal,
Thasiah College of Nursing,
Marthandam.

To

The Director,
Oldage Home,
Thiruthuvapuram.

Respected Madam / Sir,

Ms. Anusha S.P is a student of M.Sc (N) programme from the clinical speciality Medical Surgical Nursing in our college. She is conducting a study on "A study to assess the effectiveness of kneading technique on joint pain among old age people with arthritis in selected old age homes at Kanyakumari District".

This is for the research project to be submitted to the Tamil Nadu Dr. MGR Medical University in the partial fulfillment of university requirement for the award of M.Sc. (N) Degree and will be beneficial in understanding and improving the health of the patient.

As a part of her study she need to observe the level of joint pain among old age people with arthritis in your old age home. So permission may kindly be granted for her to conduct the study at your esteemed home. She will abide by the rules and regulations of your old age home.

Thanking you,

Yours faithfully,

PRINCIPAL
Thasiah College of Nursing
Marthandam - 629 165

LETTER SEEKING PERMISSION TO CONDUCT THE STUDY

THASIAH COLLEGE OF NURSING

(Approved by Govt, of Tamilnadu, TN-Nurses & Midwives Council
Indian Nursing Council & Affiliated to Dr. M.G.R. Medical University)
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Mr.C.Thasian
Chairman

22/12/2014

From

The Principal,
Thasiah College of Nursing,
Marthandam.

To

The Director,
Home for the Aged,
Pilankalai.

Respected Madam / Sir,

Ms. Anusha SP is a student of M.Sc (N) programme from the clinical speciality Medical Surgical Nursing in our college. She is conducting a study on "A study to assess the effectiveness of kneading technique on joint pain among old age people with arthritis in selected old age homes".

This is for the research project to be submitted to the TamilNadu Dr. MGR Medical University in the partial fulfillment of university requirement for the award of M.Sc. (N) Degree and will be beneficial in understanding and improving the health of the patient.

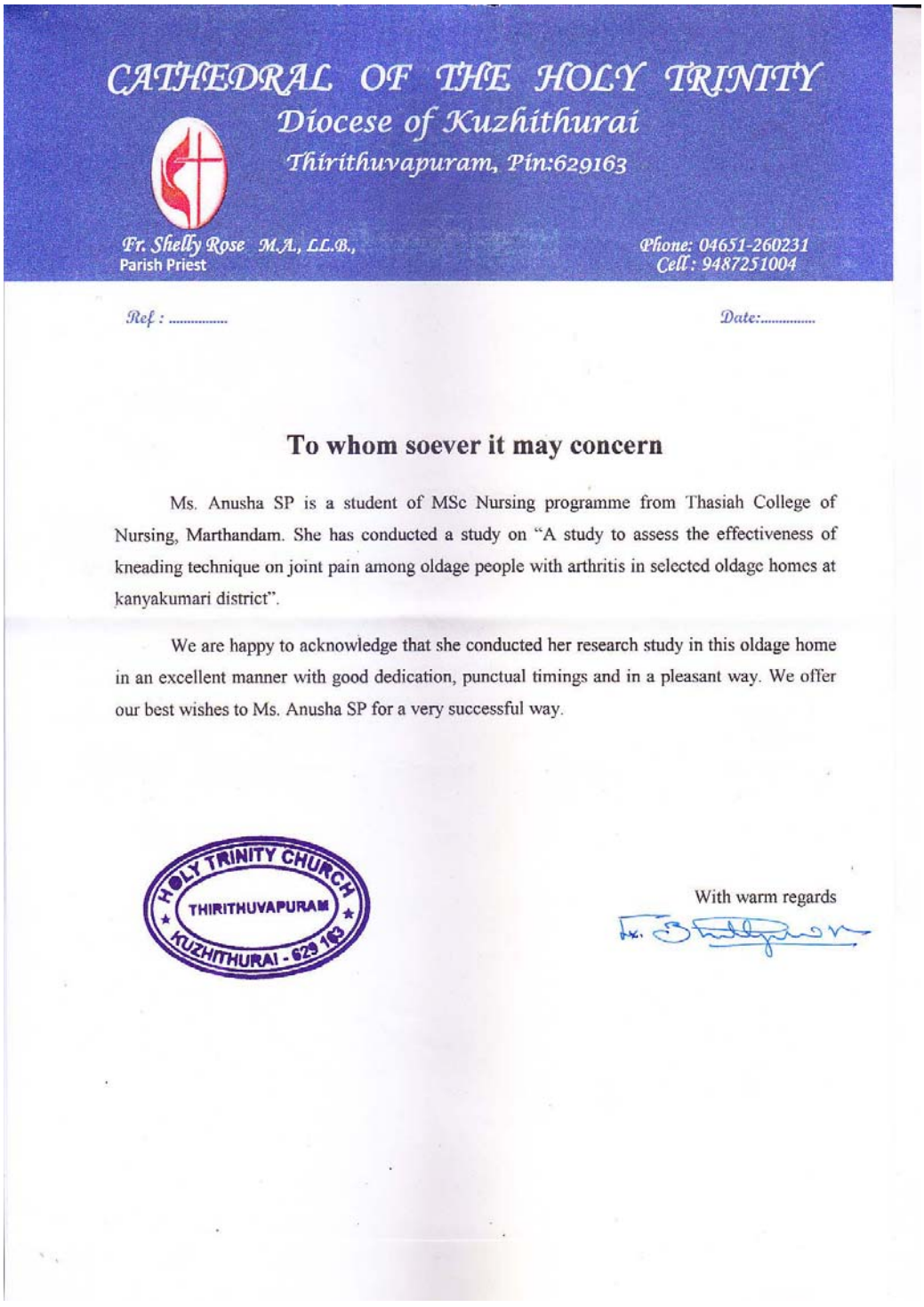
As a part of her study she need to observe the level of joint pain among old age people with arthritis in your old age home. So permission may kindly be granted for her to conduct the study at your esteemed hospital. She will abide by the rules and regulations of your old age home.

Thanking you,

Yours faithfully

PRINCIPAL
Thasiah College of Nursing
Marthandam - 629 165

LETTER GRANTING PERMISSION TO CONDUCT THE STUDY



CATHEDRAL OF THE HOLY TRINITY
Diocese of Kuzhithurai
Thirithuvapuram, Pin:629163

Fr. Shelly Rose M.A., LL.B.,
Parish Priest

Phone: 04651-260231
Cell : 9487251004

Ref : .....

Date:.....

To whom soever it may concern

Ms. Anusha SP is a student of MSc Nursing programme from Thasiah College of Nursing, Marthandam. She has conducted a study on "A study to assess the effectiveness of kneading technique on joint pain among oldage people with arthritis in selected oldage homes at kanyakumari district".

We are happy to acknowledge that she conducted her research study in this oldage home in an excellent manner with good dedication, punctual timings and in a pleasant way. We offer our best wishes to Ms. Anusha SP for a very successful way.

HOLY TRINITY CHURCH
THIRITHUVAPURAM
KUZHITHURAI - 629 163

With warm regards

LETTER GRANTING PERMISSION TO CONDUCT THE STUDY

✆ 04651 - 248523

HOME FOR THE AGED

(Registered under Tamil Nadu Societies Registration Act. 1975)

Pilankalai,
Mekkamandapam - 629 166.
Kanyakumari District.

Date.....

To whom soever it may concern

Miss. Anusha S.P is a student of MSc (N) program from Thasiah College of Nursing, Marthandam. She has conducted a study on "A study to assess the effectiveness of kneading technique on joint pain among old age people with arthritis in selected old age homes at Kanyakumari district".

As of her Research study she did screening on Arthritis in an excellent manner with good dedication and in a pleasant way to the old age people with moderate, severe and very severe joint pain.

Sr. Pavana. D.M.

HOME FOR THE AGED
PILANKALAI
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LETTER SEEKING EXPERTS OPINION FOR THE VALIDITY OF THE TOOL

From

Anusha S.P.,
M.Sc. Nursing II year ,
Thasiah College of Nursing,
Marthandam.

To

Respected Sir/Madam,

Sub: Requisition to expert opinion and suggestion for the content validity.

I Anusha S.P., M.Sc. Nursing II year student of Thasiah College of Nursing, Marthandam, have selected the following topic, **" A study to assess the effectiveness of kneading technique on joint pain among old age people with arthritis in selected old age homes at Kanyakumari District"** for my dissertation to be submitted to Tamilnadu Dr. M.G.R. Medical University in the partial fulfilment of the requirement for award of Master of science in Nursing.

I request you to go through the items and give your valuable suggestions and opinions to develop the content validity of the tool. Kindly suggest modifications, addition and deletions if any in the remarks column.

Thanking You,

Place : Marthandam Yours Sincerely,

Date : Anusha S.P

ENCLOSURE

1. Problem Statement, objectives, and hypothesis of the study
2. Demographic profile
3. Modified Extremities Functional Scale
4. Evaluation Proforma.

LIST OF EXPERTS VALIDATED THE TOOL

1) **Dr.Isaac Sunder Sen, MS(ORTHO), DNB(ORTHO), MCH(ORTHO)**

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EVALUATION CRITERIA CHECK LIST FOR VALIDATION OF THE TOOL

Instruction :

Kindly give your suggestions regarding the accuracy, relevance and appropriateness of the content. Kindly (✓) against specific columns.

PART - I

Validation of Demographic Variables

Items	Very Relevant	Relevant	Need for Modification	Not Relevant	Remarks
1					
2					
3					
4					
5					
6					
7					
8					

PART - II

Validation of Modified Extremities Functional Scale

Items	Very Relevant	Relevant	Need for Modification	Not Relevant	Remarks
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

21					
22					
23					
24					
25					

EVALUATION CRITERIA CHECKLIST FOR VALIDATING THE TOOL

Instructions:

The expert is requested to go through the following criteria for evaluation. Three columns are given for responses and a column for remarks. Kindly please tick mark in the appropriate columns and give remarks.

Interpretation column:

Column1: meets the criteria, **Column 2**: partially meets the criteria, **Column3**: does not meet the criteria.

S.No	CRITERIA	1	2	3	REMARKS
1.	SCORING Adequacy Clarity Simplicity				
2.	CONTENT Logical sequence Adequacy Relevance				
3.	LANGUAGE Appropriate Clarity Simplicity				
4.	PRACTICABILITY Easy to score Precise Utility				

Signature :

Name :

Designation :

Address :

Any other suggestion:

TOOL FOR DATA COLLECTION

SECTION : A

Structured Questionnaire for the Demographic Variables Collection

Dear participants you are requested to answer all items. This information will be treated as confidential. Kindly put a (✓) mark to answer to which you respond in the specific column, provided in the right side of the questionnaire.

Sample No: _____

Demographic Data

1) Age
    a) 60 – 69 years
    b) 70 – 79 years
    c) 80 years and above

2) Sex
    a) Male
    b) Female

3) Educational Status
    a) Illiterate
    b) Primary
    c) Secondary
    d) Higher Secondary
    e) Graduate

4) Religion
    a) Hindu
    b) Christian
    c) Muslim

5) Marital Status
    a) Married
    b) Unmarried

6) Dietary Habits
    a) Vegetarian
    b) Non-vegetarian

7) Duration of pain
    a) Less than 2 years
    b) 2 – 4 Years
    c) More than 4 Years

8) Taking drugs to relieve pain
    a) Yes
    b) No

SECTION : B

MODIFIED EXTREMITIES FUNCTIONAL SCALE

Instruction

Kindly go through each item of the questionnaire carefully and indicate your response by placing a (✓) mark in the box

S.No.	Assessment of Pain	0 None	1 Mild	2 Moderate	3 Severe	4 Extreme
	Habitual Activities					
1	Brushing					
2	Hair combing					
3	Washing dress					
4	Bathing					
5	Making a Bed					
6	Wearing a dress					
7	Raising from bed					
8	Rolling over in bed					
9	Putting on your shoes or socks					
	Recreational Activities					
10	Gardening					
11	Cleaning					
12	Cutting Vegetables					
13	Prayer Hall Arrangements					
	General Activities					
14	Lifting an object					
15	Climbing stairs					
16	Descending stairs					
17	Walking					
18	Placing an object on a shelf above your head					
19	Writing					
20	Standing for prolonged time					

21	Sitting for prolonged time					
22	Kneeling down					
23	Squatting					
24	Pulling or pushing the door					
25	Standing on an unstable or sloping floor					

Scoring and Interpretation

0 - No Pain

1 – 25 - Mild Pain

26 – 50 - Moderate Pain

51 – 75 - Severe Pain

76 – 100 - Extreme Pain

PROTOCOL FOR KNEADING TECHNIQUE

Introduction

The word massage comes from the Greek ‘masso’ means to kneed. Hippocrates, known as the father of medicine, described the benefits of using massage on joints. A technique of soft tissue manipulation which includes various types of strokes in which tissues are compressed and released with varying amount of pressure. Kneading is used to deliver pressure over the small area.

Definition

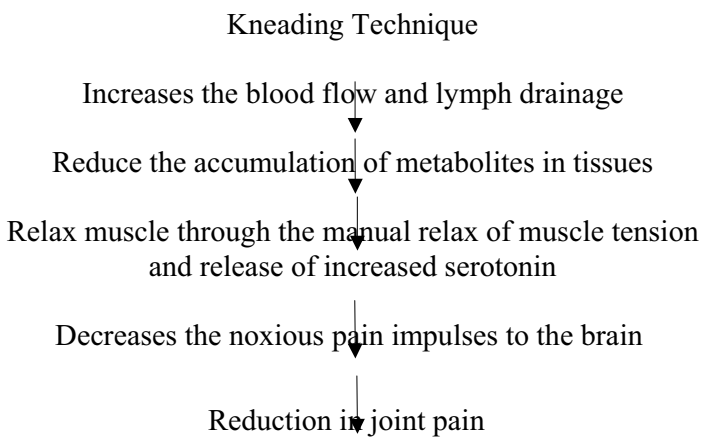
Kneading is a manipulation in which muscles and subcutaneous tissues are alternatively compressed and released. The movement takes place in a circular motion which is divided into two phases pressure and release. During the pressure phase of each stroke, the hands and skin move together on the deeper structure and during the release phase, the hand glides smoothly over the skin.

- Roshan Meena (2006)

Purpose

- To increase joint range of motion
- To mobilize skin and subcutaneous tissues
- To decrease pain
- To increase extensibility and mobility of connective tissues
- To reduce anxiety , stress, and improve relaxation
- To decrease chronic edema

Mechanism of action



Effects

- Dilatation of capillaries and arterials increase the blood supply and promote resolution of inflammatory processes of skin and subcutaneous tissues.
- Increases extensibility and elasticity of skin and subcutaneous tissue.
- The blood supply of muscles increases, which eliminates the waste metabolic products, thus:

  -Relaxes the muscles
  -Increases flexibility of muscles
- Increase lymphatic blood flow

Contraindications

- Acute inflammation
- Infection
- Confirmed or suspected thrombosis and thrombophlebitis
- Malignant disease
- Acute musculoskeletal injuries, fracture, muscle strain, ligaments sprain

Preparation of Articles

- Towels to support the old age person
- Pillows of various sizes to support the massaging area

- Linen to cover the old age person
- Lubricants

Powder is to reduce friction and control the amount of drag and glide between therapists hand and patient's body.

Position

Depends upon client's preference and comfortability

Procedure

- Prepare the needed articles
- Explain the procedure
- Make comfortable position
- Wash hands
- Expose the part

- Apply lubricant (powder)

- The pads of fingers are placed over the target structure

- Apply pressure over the tissues
- Movement is performed in a circular manner which includes pressure and release phase

Direction of Strokes

The basic direction of each stroke is circular

Techniques

- The pad of thumb or pad of tip of fingers move over the underlying structures with the skin during the one half circle which is known as pressure phase.
- After pressure phase, the pressure is released and the hands glides smoothly over the another half circle which is known as release phase.
- After performing stroke in full circle the stroke is repeated on adjacent area.

Rate of Movement

The both pressure phase and release phase should be completed in 3-4 seconds.

Pressure

The pressure is applied during half of the circle

After Care

- Make client in normal position
- Replace articles
- Wash hands
- Record the procedure

Conclusion

Manipulation of muscles and subcutaneous tissues by alternatively compressing and releasing in a circular manner helps in increase blood supply, eliminates metabolic waste product, relieving pain, reduces stress and anxiety and improve range of motion of joints.

PHOTOGRAPHS